REFINING BETRAYAL TRAUMA THEORY TO INFORM MODELS OF ACQUIRED CALLOUSNESS AMONG DELINQUENT YOUTH

by

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ABSTRACT

Callous-unemotional (CU) traits are an important distinguishing characteristic among delinquent youth, as youth displaying CU traits tend to commit the most severe offenses. CU traits have typically been conceptualized as biologically ingrained traits; however, recent research suggests that some youth may "acquire" CU traits in response to trauma. With the intention of increasing knowledge of the emotional processes associated with acquired callousness, the current study proposes a refined version of betrayal trauma theory which subsequently informed the inclusion of experiential avoidance and emotional numbing in potential models of acquired callousness. Structural equation modeling was used to test the proposed models of acquired callousness in a sample of 213 detained youth. Results of confirmatory factor analyses used to identify a measurement model with adequate fit necessitated examining different forms of experiential avoidance and emotional numbing in the structural models tested. Overall, results were consistent with a "partial serial mediation model" of acquired callousness, in which experiential avoidance fully mediates the association between betrayal trauma and emotional numbing, and emotional numbing, in turn, partially mediates the association between experiential avoidance and callousness. Results indicated that these findings were specific to models that included tension reduction behaviors as an index of experiential avoidance and general numbing as an index of emotional numbing. These findings suggest that maladaptive forms of experiential avoidance may help to explain the

association between betrayal trauma and callousness. Furthermore, numbing of specific emotions, such as sadness, may reflect different variants of emotional detachment as compared to general numbing and may have different implications for acquired callousness. To further expand on prior research, the current study compared the effects of betrayal trauma occurring in different developmental time periods and found that only betrayal trauma occurring in adolescence contributed to youth callousness. Taken together, the findings of the current study offer insight into the circumstances under which both experiential avoidance and emotional numbing may contribute to callousness and contribute to the growing body of literature that suggests that some youth may acquire callousness in response to the experience of trauma.

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INTRODUCTION

A significant body of research indicates that the experience of childhood trauma may be associated with the development of juvenile delinquency. Several studies suggest that as many as 90% of youth in the juvenile justice system have been exposed to potentially traumatic events (e.g., Abram et al., 2004; Kerig, Ward, Vanderzee, & Arnzen Moeddel, 2009), and the results of longitudinal studies indicate that early experience of trauma is predictive of higher levels of antisocial behavior in adolescence (e.g., Feiring, Miller-Johnson, & Cleland, 2007; Lansford et al., 2007). In an effort to understand the underlying mechanisms accounting for the association between trauma and delinquency, increased discourse and research has focused on callous-unemotional traits (e.g., Allwood, Bell, & Horan, 2011; Kerig & Becker, 2010; Kerig, Bennett, Thompson, & Becker, 2012; Kimonis, Frick, Munoz, & Aucoin, 2009; Kimonis, Skeem, Cauffman, & Dmitrieva, 2010; Tatar, Cauffman, Kimonis, & Skeem, 2012).

Callous-unemotional (CU) traits, including emotional detachment and a lack of empathy and remorse (Christian, Frick, Hill, Tyler, & Frazer, 1997; Frick, Bodin, & Barry, 2000), are an important distinguishing characteristic among delinquent youth, as youth displaying CU traits represent a subset of youth that commit the most severe offenses (see Frick & Dickens, 2006; Frick & White, 2008 for reviews; Kruh, Frick, & Clements, 2005). Typically, CU traits have been conceptualized as biologically ingrained traits that are relatively impervious to socialization (e.g., Frick & Ellis, 1999; Viding,

Blair, Moffitt, & Plomin, 2005); however, recent research (e.g., Kahn et al., 2013; Krischer & Sevecke, 2008; Tatar et al., 2012) supports an idea originally proposed by Karpman (1941), that there may be a secondary form of callousness that arises in the aftermath of trauma. This secondary form of callousness is perhaps best conceptualized as "acquired callousness" (Kerig & Becker, 2010), as these traits are described as being "acquired" as a result of originally adaptive responses to trauma.

With the intention of exploring the emotional processes associated with acquired callousness, recent research has indicated that emotional numbing may mediate the association between trauma and CU traits (Allwood et al., 2011; Kerig et al., 2012) and that this may be particularly true for traumas involving betrayal, or perpetration by someone to whom the victim is close (Kerig et al., 2012). Although these recent studies have contributed significantly to our understanding of acquired callousness, they have focused only on emotional numbing as a mediator of trauma and CU traits, and research has not yet considered how underlying functional processes, such as experiential avoidance (Hayes, Wilson, Gifford, Follete, & Strosahl, 1996), may also contribute to acquired callousness in the aftermath of trauma. Additionally, research by Kerig and colleagues may not have been based on a developmentally sensitive conceptualization of betrayal trauma that is most relevant to youth in the juvenile justice system. Given this, the current study seeks to apply a refined version of betrayal trauma theory (Freyd, 1994, 1996) to theories of acquired callousness in order to a) examine how a developmentally sensitive conceptualization of betrayal trauma may contribute to CU traits, and b) examine how both emotional numbing and experiential avoidance may contribute to CU traits in models of acquired callousness. The current study also seeks to expand on prior

research by considering how betrayal trauma occurring in different developmental periods may have varied effects in models of acquired callousness, as prior research on betrayal trauma has only considered the role of total betrayal trauma occurring throughout childhood.

Refining Betrayal Trauma Theory

Social betrayal was first proposed as a dimension of traumatic experience by Jennifer Freyd in the context of her betrayal trauma theory (Freyd, 1994, 1996; Freyd & Deprince, 2001), a theory originally developed to explain the function of traumatic amnesia. According to Freyd, betrayal traumas refer to traumatic experiences (typically forms of maltreatment or abuse) involving perpetration by an attachment figure or other individual on whom the victim depends. Freyd argues that humans are "exquisitely sensitive to betrayal or cheating" and therefore experience "strong negative emotions that guide us away from the betrayer" (Freyd & DePrince, p. 141). She further explains that separating oneself from the betrayer is detrimental if the betrayer is an attachment figure, and it therefore becomes necessary to isolate the knowledge of the betrayal from conscious awareness in order to preserve the attachment relationship.

Despite attempts to empirically support Freyd's theory (Barlow & Freyd, 2009; Freyd, Klest, & Allard, 2005; Freyd, Martorello, Alvarado, Hayes, & Christman, 1998), subsequent research and discourse has critically examined whether betrayal traumas lead to amnesia (e.g., Lindblom & Gray, 2010; McNally, 2007; McNally, Ristuccia, & Perlman, 2005), indicating that Freyd's emphasis on amnesia as an outcome of betrayal trauma exposure may be misguided. Although this aspect of betrayal trauma theory has

been met with much criticism, recent research indicates that betrayal may still be an important dimension of traumatic experience to consider. For example, traumas high in betrayal (as indicated by relational closeness to the perpetrator) have been found to be more predictive of posttraumatic stress symptoms and other forms of psychological distress than traumas low in betrayal (Allard, 2009; Goldsmith, Freyd, & DePrince, 2012; Martin, Cromer, DePrince, & Freyd, 2011). Additionally, research measuring participants' perceptions of traumatic experiences suggest that perceived betrayal is more strongly associated with posttraumatic stress than are other dimensions of traumatic experience, including perceived life threat and injury severity (Kelley, Weathers, Mason, & Pruneau, 2012).

Given the importance of betrayal as a dimension of traumatic experience, a refined version of betrayal trauma theory may offer further insight into the psychological mechanisms associated with trauma. There are two key refinements to the original betrayal trauma theory that are being proposed: a) a focus on the isolation of emotional experiences as an outcome of traumatic betrayal rather than knowledge isolation, and b) an expansion of the definition of betrayal traumas to include experiences likely to be experienced as traumatic betrayal by children. These refinements, described in more detail in the subsequent sections, will hopefully create a developmentally sensitive version of betrayal trauma theory that is potentially relevant to a larger proportion of individuals who have experienced trauma.

From Knowledge Isolation to Affect Isolation

Although Freyd's theory focuses on the importance of isolating knowledge and memories of traumatic betrayal in order to preserve an attachment relationship, it may be

more appropriate to focus on the importance of isolating negative, aversive emotions associated with the betrayal. In general, posttraumatic symptoms reflecting a state of isolated affect (such as a restricted range of affect and interpersonal detachment) are much more commonly endorsed by individuals with PTSD than are symptoms associated with dissociation or psychogenic amnesia (e.g., Miller et al., 2013). This suggests that refining betrayal trauma theory to focus on isolating aversive emotions may make it relevant to a larger population of individuals who have experienced trauma, while still remaining consistent with the major tenets of Freyd's theory.

In her initial explanation for why a betrayal trauma would threaten an attachment relationship, Freyd refers to the experience of "strong negative emotions that guide us away from the betrayer" (Freyd & DePrince, 2001, p. 141). Isolating these "strong negative emotions" *themselves* (instead of the memories that evoke them) could allow a traumatized individual to retain an attachment to their betrayer. In this sense, the reduction of aversive emotions might serve to maintain proximity to caregivers in the face of traumatic betrayal, which, according to Freyd and consistent with attachment theory, is necessary for survival. This idea is also echoed in Main and Weston's (1982) discussion of avoidant attachment, in which they suggest that infants may avoid their mothers following periods of separation in order to reduce feelings of anger and the impulse to flee from their caregivers. Main and Weston state that avoidance arises "as an alternative to angry behavior" and primarily functions to "reduce the infant's own tendencies to exhibit behaviors that would interfere with maintenance of proximity" to the attachment figure (p. 50). In sum, Main and Weston imply that isolating anger towards caregivers is necessary in order to maintain the attachment relationship, which is

consistent with the idea that affect isolation might serve to maintain the relationship with an abuser in the proposed refinement of betrayal trauma theory .

A Developmentally Sensitive Definition of Betrayal

Another way in which it may be important to refine betrayal trauma theory is to expand the way that betrayal traumas are defined and conceptualized in order to create a more developmentally sensitive definition of betrayal. Freyd's (1994, 1996) definition of betrayal typically includes experiences of physical, emotional, or sexual abuse perpetrated by someone to whom the victim is close, as well as the witnessing of domestic violence, death, or serious injury involving a loved one. This definition has informed how betrayal trauma has been operationalized in the research literature in surveys such as the *Brief Betrayal Trauma Survey* (Goldberg & Freyd, 2006). There is one category of events, however, that is often left out of the conceptual and operational definitions of betrayal trauma, as well as of broader definitions of trauma. This category includes experiences in which caregivers are physically and/or emotionally unavailable for prolonged periods of time, such as caregiver incarcerations, abandonment by caregivers, physical or emotional neglect, and caregiver substance use.

The notion that the unavailability of an attachment figure or caregiver may be particularly traumatic is not a new idea, as Bowlby (1973) states, "Of the many fear-arousing situations that a child, or older person, can foresee, none is likely to be more frightening than the possibility that an attachment figure will be absent or, in more general terms, unavailable when wanted" (p. 234). Pynoos, Steinberg, and Piacentini (1999) explain that children "include safety of parents in their schemas of danger and their own self-protection" because, in childhood, "contextual estimation of danger and

protective intervention rests with parent(s) or caretakers" (p. 1543). In a later article, Pynoos and colleagues (2009) rely on this developmental perspective to suggest that "experiencing a parent's inability to be able to protect" (which would include physical and emotional unavailability of caregivers) may be an objective feature of trauma that could be used to expand the criteria for what constitutes a traumatic experience among children. This idea has been supported with empirical evidence, as Taylor and Weems (2009) found that separations from and loss of caregivers (as compared to other events meeting the DSM-IV definition of trauma) were associated with higher levels of posttraumatic stress symptoms and were more likely to be perceived as traumatic by children.

In addition to experiencing separation from and unavailability of caregivers as traumatic, children may also view these experiences as forms of betrayal if they believe their caregivers have abandoned them intentionally or are not available when they could be. Supporting this idea, Main and Weston's (1982) discussion of feelings of anger that arise following periods of separation from attachment figures implies that a sense of betrayal may be associated with the experience of caregiver unavailability. Similarly, Kobak, Cassidy, and Zir's (2004) construct of "attachment-related traumas" offers further support for considering caregiver unavailability as a betrayal trauma. According to Kobak and colleagues, an attachment-related trauma occurs when "a frightening experience is accompanied by or results from the appraisal of loss, rejection or abandonment by an attachment figure" (p.391). Kobak and colleagues explain that when children (particularly younger children) experience "prolonged, unanticipated separations" in which there is "little communication" and no "joint plan for reuniting

with the attachment figure" (p.392), they may view these separations as forms of abandonment. Furthermore, Kobak and colleagues refer to an intense "sense of betrayal" (p. 394) that often accompanies attachment-related traumas. Taken together, this body of research and theoretical discourse offers sufficient support for expanding the operational definition of betrayal traumas to include experiences that involve emotional and/or physical unavailability of caregivers.

Betrayal Trauma Theory and Acquired Callousness

Given the high occurrence of both betrayal trauma and callous-unemotional traits among delinquent youth, applying a refined version of betrayal trauma theory to models of acquired callousness may offer insights for theories of juvenile delinquency. In Karpman's (1941) proposed construct of "secondary psychopathy," he suggests that some delinquent youth may acquire a callous, unemotional presentation in the aftermath of trauma, whereas others may present with a primary version of psychopathy, defined by a biologically ingrained set of traits including callousness and unemotionality. Because those with secondary psychopathy have been suggested to *acquire* a subset of traits in the aftermath of trauma, the term "acquired callousness" has been used to represent these trauma-derived characteristics (Kerig & Becker, 2010). Research attempting to differentiate between primary and secondary psychopathy has generally supported the notion that childhood maltreatment is associated with secondary or acquired forms of callousness (Kimonis et al., 2010; Krischer & Sevecke, 2008; Tatar et al., 2012; Weiler & Widom, 1996). Because childhood maltreatment is assumed to be high in betrayal, the

body of research supporting Karpman's theory offers preliminary support for considering betrayal trauma theory in relation to acquired callousness.

More convincing support for considering betrayal trauma theory in relation to CU traits, however, comes from Porter's (1996) proposed explanation of secondary psychopathy. Porter explains that the experience of early trauma (particularly abuse from parents) may contribute to "affective inhibition" (p. 184), or the "deactivation of normal human emotions" (p. 187). Porter suggests that although this initial "deactivation of emotions" may be adaptive, over time it can become a more generalized and pervasive form of emotional detachment that leads to secondary psychopathy or acquired callousness. The "affective inhibition" and "deactivation of emotions" to which Porter refers can be considered analogous to the isolation of negative affect that has been described as part of the refined betrayal trauma theory. Considering Porter's explanation of secondary psychopathy in conjunction with betrayal trauma theory implies that affect isolation may be a response to trauma that mediates the association between betrayal trauma exposure and CU traits.

Experiential Avoidance and Emotional Numbing as Forms of Affect Isolation

Affect isolation is represented in the research literature by several different terms, many of which have been linked to trauma. For example, *emotional suppression* (e.g., Kaplow, Gipson, Horwitz, Burch, & King, 2013), *avoidant coping* (e.g., Elzy, Clark, Dollard, & Hummer, 2013), *diminished emotions* (e.g., Allwood, Bell, & Horan, 2011), and *expressive inhibition* (e.g., Clapp et al., 2014) are all terms that reflect the concept of

affect isolation and that have been implicated as psychological responses to trauma that may contribute to further psychological distress. Many of these constructs, however, fall under the broader constructs of experiential avoidance (Hayes, Wilson, Gifford, Follete, & Strosahl, 1996) and emotional numbing.

Experiential avoidance has been suggested as an "umbrella-term" representing an unwillingness to experience emotional distress as well as behaviors and processes that share the same underlying function of "avoiding, escaping or otherwise altering unwanted private events" (Kingston, Clarke, & Remington, 2010, p. 145). By focusing on the underlying functions of behaviors, Hayes and colleagues (1996) group together multiple constructs in the category of experiential avoidance, including behavioral avoidance, distraction, and suppression of thoughts and emotions, given that each are processes aimed toward reducing aversive affect. Symptoms of posttraumatic avoidance have also been suggested as forms of experiential avoidance (Hayes et al., 1996; Hayes & Strosahl, 2004), as the avoidance of thoughts, people, and places related to trauma functions to limit negative emotions that are evoked by trauma reminders. Although experiential avoidance is a relatively new construct, a growing body of literature has identified it as an important construct related to psychological symptoms associated with trauma (e.g., Kashdan, Morina, & Priebe, 2009; Marx & Sloan, 2005; Morina, Stangier, & Risch, 2008; Orcutt, Pickett, & Pope, 2005; Plumb, Orsillo, & Luterek, 2004, Polusny, Rosenthal, Aban, & Follette, 2004; Reddy, Pickett, & Orcutt, 2006).

Emotional numbing, which typically refers to the diminished experience and expression of emotions, is another construct reflecting affect isolation that has long been associated with trauma. Although the term "emotional numbing" may imply a functional

similarity to experiential avoidance (Hayes et al., 1996; Hayes & Strosahl, 2004), the way that it is typically conceptualized in the DSM-IV-TR and DSM-5 symptoms of posttraumatic stress, and by widely used measures of emotional numbing, such as the *Emotional Numbing and Reactivity Scale* (ENRS; Orsillo, Theodore-Oklata, Luterek, & Plumb, 2007) suggests an important distinction between experiential avoidance and emotional numbing. Whereas experiential avoidance includes an intolerance for emotional distress as well as the efforts and processes aimed at reducing emotional distress, emotional numbing reflects an *already achieved state* of isolated affect. For example, the posttraumatic symptoms of emotional numbing as represented in the DSM-IV-TR and DSM -5 include the loss of interest in activities, detached relationships, and restricted range of affect, each of which *arise from*, rather than *lead to*, a state of being emotionally numb. Similarly, the ENRS assesses the extent to which individuals endorse experiencing specific emotions in various emotionally arousing situations. This, therefore, represents the extent to which individuals are *already* emotionally numb rather than the extent to which they are actively engaging in processes aimed towards becoming emotionally numb. In this sense, the construct of emotional numbing (as it is currently defined and conceptualized) may be best represented as emotional numb-*ness* rather than emotional numb-*ing.* Because experiential avoidance and emotional numbing have both been established as important psychological constructs related to trauma and because the two constructs together encompass multiple facets of affect isolation, both will be considered as potential mediators of the association between betrayal trauma and CU traits.

Empirical Support for the Mediating Role of Affect Isolation

Although there is relatively little research that has focused on identifying emotional processes that may explain the association between trauma and CU traits, the combination of several research studies offer sufficient support for including both emotional numbing and experiential avoidance in models of acquired callousness. Initial empirical support for including emotional numbing in models of acquired callousness comes from research by Allwood and colleagues (2011) who found that exposure to violence was associated with increased emotional numbing, and that emotional numbing (specifically numbing of fear and sadness) was associated with increased violence perpetration. Stronger empirical evidence for the mediating role that emotional numbing may play comes from recent research by Kerig and colleagues (2012), which suggests that the numbing of fear and sadness may mediate the association between trauma and CU traits, specifically for traumas involving betrayal. It is important to note that in this study, the direct effect between betrayal trauma and CU traits was significant after accounting for indirect effects through emotional numbing, suggesting that emotional numbing only partially mediates the association between trauma and CU traits. This allows for the possibility that other emotional processes, such as experiential avoidance, may help to explain the association between betrayal trauma and CU traits.

Although there are no known studies to date that have explicitly explored experiential avoidance in relation to CU traits, experiential avoidance has repeatedly been implicated as a mediator between trauma and other psychological symptoms. In research with adults, experiential avoidance has been found to mediate the association between trauma and posttraumatic stress (Orcutt et al., 2005; Polusny et al., 2004; Reddy et al.,

2006), and also the association between trauma and depression as well as trauma and social anxiety (Kashdan et al., 2009). Echoing Porter's theory that affective inhibition is initially adaptive in the aftermath of trauma, Kashdan and colleagues explain that although experiential avoidance may initially be adaptive, it can "translate into an inability to cope with natural negative emotions that arise during challenging situations in everyday life" and ultimately "interfere with the recovery of trauma survivors" (p. 186).

Although the majority of research on experiential avoidance has involved adults, there have been several recent research studies with adolescents that continue to emphasize the role that experiential avoidance plays in maintaining psychological distress following the experience of trauma. Specifically, experiential avoidance, in the form of emotional suppression, was found to mediate the association between adverse life events and suicidal ideation (Kaplow et al., 2013). Similarly, experiential avoidance was also found to mediate the association between childhood maltreatment and posttraumatic stress (Shenk, Putnam, Raush, Peugh & Noll, 2014). Given that experiential avoidance has repeatedly been implicated as a mediator between trauma and multiple forms of psychological distress, it may also help to explain the association between betrayal trauma and CU traits.

Additional support for the notion that experiential avoidance may play a role in acquired callousness comes from the high occurrence of substance use (e.g., Johnson et al., 2004; Teplin, Abram, McClellan, Dulcan, & Mericle, 2002), sexual activity (e.g., Huizinga, Loeber, & Thornberry, 1993), aggression (e.g., Thornberry, Huizinga, & Loeber, 2004), and self-harm (e.g., Abram et al., 2008; Freedenthal, Vaughn, Jenson, & Howard, 2007) among delinquent youth. Each of these problem behaviors are considered

to be forms of experiential avoidance if they function to avoid negative emotions, and although the co-occurrence of experiential avoidance and CU traits is not sufficient to imply an association between the two constructs, it offers preliminary support for examining experiential avoidance as a contributor to acquired callousness. More convincing support, however, comes from considering the body of research on posttraumatic stress and delinquency in conjunction with the recent finding by Shenk and colleagues (2014) that experiential avoidance mediated the association between child maltreatment and posttraumatic stress symptoms.

Although posttraumatic stress has not explicitly been examined as a mediator between trauma and CU traits, it has been used to distinguish between youth with primary and acquired variants of callousness, with higher rates of posttraumatic stress being associated with acquired callousness (Tatar et al., 2012). There have also been several studies that have suggested that posttraumatic stress may mediate the association between trauma and violence perpetration in community samples (Allwood & Bell, 2008; Ruchkin, Henrich, Jones, Vermeiren, & Schwab-Stone, 2007). Similarly, Kerig and colleagues (2009) found that posttraumatic stress mediated the association between interpersonal trauma exposure and mental health problems in a sample of incarcerated youth. Together these research studies suggest that posttraumatic stress is associated with acquired callousness. When this is considered alongside the findings that experiential avoidance mediated the association between childhood maltreatment and posttraumatic stress (Shenk et al., 2014), the logical assumption is that experiential avoidance may also contribute to acquired callousness, and perhaps mediate the association between betrayal trauma and CU traits.

Potential Models of Acquired Callousness

With the understanding that both experiential avoidance and emotional numbing may be potential mediators between betrayal trauma and CU traits, it still raises the question of how exactly the two constructs may be related in a model of acquired callousness. In general, there is a relative paucity in research exploring the association between experiential avoidance and emotional numbing (Tull & Roemer, 2003), offering little empirical evidence that can guide potential models of acquired callousness. Because of this, there are three potential models of acquired callousness that will be explored, depicted in Figure 1: a serial mediation model, a multiple mediator model, and a moderated mediation model.

The serial mediation model is based on the assumption that active efforts to suppress emotions would be associated with decreased emotional responsiveness (increased emotional numbing), and that decreased emotional responsiveness would in turn be associated with higher levels of CU traits. Therefore, experiential avoidance would be expected to (at least partially) mediate the association between betrayal trauma and emotional numbing, and emotional numbing would be expected to mediate the association between experiential avoidance and CU traits. In the one known study to date that has explicitly examined the association between experiential avoidance and emotional numbing (Tull & Roemer, 2003), experiential avoidance was found to be a significant predictor of emotional numbing, which would appear to support a serial mediation model. However, Tull and Roemer found that when posttraumatic hyperarousal was included in the regression model, the association between experiential avoidance and emotional numbing was no longer significant. This would suggest that

hyperarousal may be a more robust predictor of emotional numbing, and may lend support to an alternative model of acquired callousness, the multiple mediator model.

In the multiple mediator model, experiential avoidance and emotional numbing are both assumed to mediate the association between betrayal trauma and CU traits, but there would be no significant indirect effect of experiential avoidance on CU traits through emotional numbing. This model would be consistent with the theory that effortful avoidance and emotional numbing involve different mechanisms. Specifically, posttraumatic avoidance has been suggested to involve effortful and strategic psychological processes, whereas emotional numbing has been suggested to involve automatic psychological processes (Foa, Riggs, & Gershuny, 1995; Foa, Zinbarg & Rothbaum, 1992). Litz (1992) further elaborates on this idea by suggesting that emotional numbing is the result of a biological burn-out mechanism in response to the experience of chronic hyperarousal. Empirical support for this theory comes from results of factor analytic studies that consistently show that posttraumatic avoidance and numbing belong in separate symptom clusters in the diagnostic criteria for PTSD (e.g., Bennett, Kerig, Chaplo, McGee, & Baucom, in press; Foa et al., 1995; D. W. King, Leskin, King, & Weathers, 1998; L. A. King & King, 1994), as well as by findings that suggest that hyperarousal is a more robust predictor of emotional numbing than posttraumatic avoidance (e.g., Feuer, Nishith, & Resick, 2005; Flack, Litz, Hsieh, Kaloupek, & Keane, 2000; Litz et al., 1997; Nugent, Christopher, & Delahanty, 2006). Although this research is based on *posttraumatic* avoidance, the findings may extrapolate to the broader construct of experiential avoidance and support a model in which

emotional numbing and experiential avoidance represent two separate paths through which betrayal trauma may be associated with CU traits.

The final proposed model of acquired callousness, the moderated mediation model, suggests that the indirect effects of betrayal trauma on CU traits through experiential avoidance are moderated by emotional numbing, such that only when emotional numbing is high, would experiential avoidance be associated with CU traits. This model is based on the possibility that some youth who engage in experiential avoidance may be characterologically "better" at achieving emotional numbness. For these youth, the association between experiential avoidance and CU traits would be stronger as compared to youth for whom experiential avoidance does not effectively result in emotional numbness.

Effects of Betrayal Trauma across Developmental Periods

In addition to understanding the emotional processes that may account for the association between betrayal trauma and CU traits, it is also important to understand how the effects of betrayal trauma may differ across developmental periods. There is sufficient theoretical and empirical evidence to suggest that the impact of trauma varies as a function of the developmental time-period in which trauma is experienced (e.g., Cicchetti, 2006; Kaplow, Dodge, Amaya-Jackson & Saxe, 2005; Kaplow & Widom, 2007; Keiley, Howe, Dodge, Bates, & Petit, 2001; Kerig, Ludlow, et al., 2012; Thornberry, Ireland, & Smith, 2001), but to date, there are no known studies that have explicitly explored this in relation to acquired callousness.

Ford (2010) suggests that "exposure to psychological trauma may have a profound and lasting impact when it occurs at critical ages or developmental transitions,

particularly if it also involves…'betrayal' by caregivers" (p. 69). Research on betrayal trauma, however, has primarily differentiated between betrayal trauma occurring in childhood (before age 18) and betrayal trauma occurring in adulthood. For example, Cloitre and colleagues (2009) compared the effects of cumulative trauma occurring in childhood (including abuse, neglect, and absence from mother due to impairment or abandonment) to the effects of cumulative trauma occurring in adulthood (including domestic violence, sexual assault and rape). Only childhood trauma was predictive of increased symptom complexity (the presence of a greater number of different types of posttraumatic symptoms and an indication of increased self-regulatory difficulties) in adulthood. This suggests that childhood experiences of betrayal trauma may significantly contribute to deficits in emotional self-regulation, but still leaves the question of how the effects of trauma occurring in different developmental periods within childhood may vary.

Research on broader conceptualizations of trauma has generally found that earlier onset of trauma is associated with increased psychological problems in adolescence (e.g., English, Graham, Litrownik, Everson, & Bangdiwala 2005; Kaplow et al., 2005; Keiley et al., 2001) and in adulthood (e.g., Kaplow & Widom, 2007). Following this logic, it is likely that youth who experience betrayal trauma earlier in childhood may be at increased risk for developing CU traits. This would also be consistent with the theoretical underpinning of both betrayal trauma theory and attachment theory. Specifically, betrayal trauma theory suggests that it is necessary to reduce the aversive emotional responses that would threaten the desire to maintain proximity to caregivers. In turn, attachment theory suggests that maintaining proximity to caregivers is most important in

early childhood, when young children rely most on their caregivers for protection and provision of resources. Therefore, reducing aversive emotions associated with betrayal trauma may be most critical for young children who may have a greater need to maintain proximity to their caregivers.

The Current Study

With the goal of better understanding the emotional processes that may account for an association between trauma and CU traits, the current study seeks to apply a refined version of betrayal trauma theory (Freyd, 1994, 1996) to theories of acquired callousness. Specifically, the current study focuses on the mediating role that affect isolation may play in explaining the association between betrayal trauma and callousness and expands on prior research by conceptualizing betrayal trauma in a developmentally sensitive way. The primary aims of the study are to 1) compare three potential models of acquired callousness that consider how both emotional numbing and experiential avoidance may explain the association between betrayal trauma exposure and CU traits, 2) compare the effects of betrayal trauma as it was originally conceptualized to the effects of a developmentally sensitive definition of betrayal trauma, and 3) assess the effects of betrayal trauma occurring in different developmental periods.

It is hypothesized that including experiential avoidance in models of acquired callousness will help to explain the association between betrayal trauma and CU traits. Because experiential avoidance has yet to be explored in relation to CU traits, comparison between models is largely exploratory, so there are no specific predictions regarding which of the three proposed models may fit the data better. It is also

hypothesized that both the original conceptualization of betrayal trauma and the expanded conceptualization of betrayal trauma will contribute to acquired callousness, and that betrayal trauma occurring early in life will place youth at increased risk for displaying callous-unemotional traits.

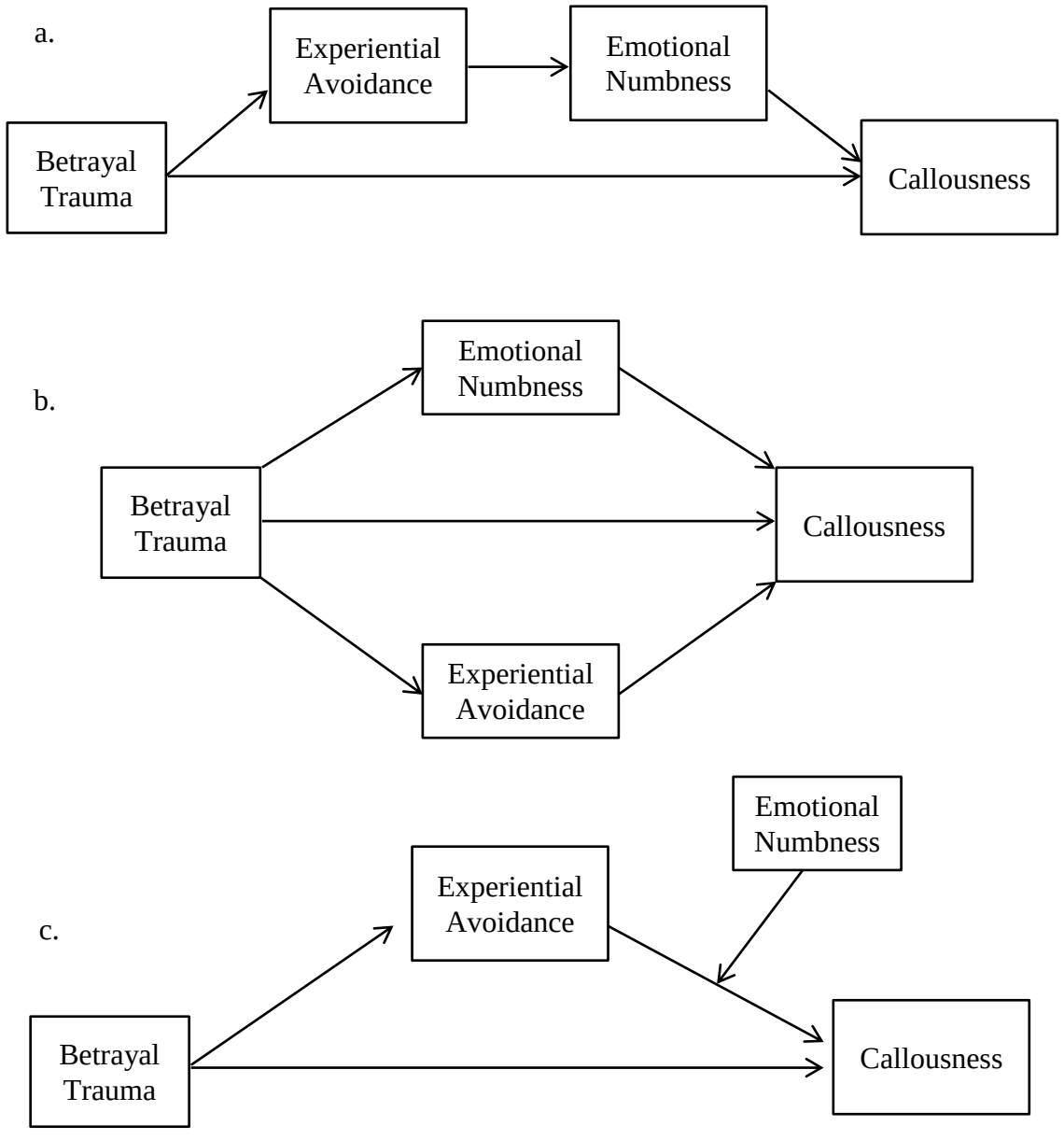

Figure 1. Three proposed models of acquired callousness. a. Serial mediation model; b. multiple mediator model; c. moderated mediation model.

METHODS

Participants

The participants in the study included 213 youth between the ages of 13 and 17 years (M_{age}= 15.44, *SD* = 1.23) who were detained in the Salt Lake Valley Juvenile Detention Center. The Salt Lake Valley Juvenile Detention Center is a short-term placement facility in which youth reside before they appear before a judge or before they are moved to a longer term placement facility. The participants in the current study included 56 girls and 157 boys, of whom 49.8 % identified as Caucasian, 29.6 % Latino/a, 5.6 % African American, 5.6 % biracial or multiracial, 4.2% Native American, and 5.2% other ethnic minorities.

Procedures

All procedures were approved by the University of Utah Institutional Review Board as well as the Department of Human Services Institutional Review Board. Additionally, a Certificate of Confidentiality was obtained from the National Institutes of Health as an added level of security to protect the privacy of participants. Parents and legal guardians were approached by undergraduate research assistants during visiting hours at the Salt Lake Valley Detention Center in order to obtain parental consent and to identify youth who might potentially be interested in participating in the research study. Parent permission forms were available in both English and Spanish; however, parental permission was obtained only when there was a bilingual research assistant available or

when a bilingual adult family member was available to translate. Because of this, and because of other language differences, 12.6% of parents approached were ineligible to provide consent due to barriers in communication. An additional 15.7% of parents approached were ineligible to participate because they were not the legal guardian of the youth, and 12.3% of parents approached were ineligible to participate because they were waiting to pick up their youth, rather than waiting for visiting hours. Of those parents who were eligible to participate, 55.6% agreed to provide parental consent for youth, and 44.4% refused. (Of note, the refusal rate is likely inflated due to the fact that some parents refused before eligibility could be assessed, but were still counted as refusals. Additionally, many parents were approached more than once, and although efforts were made to not count parents as duplicate refusals, this likely occurred in some cases.)

In order to obtain youth assent, youth were approached at a separate time by advanced undergraduate and graduate research assistants, outside of visiting hours, in a private interview room within the detention center. Participants were informed that their participation would not affect their stay in the detention center and that they were free to discontinue participation at any time. Of those youth for whom parental consent was obtained, 17.8% were released before they were approached about participation. Of those youth who were approached about participation, 92% agreed to participate.

Youth who were willing to participate completed a set of questionnaires on the computer. In order to account for differences in literacy within this population, participants were given the choice of whether they preferred to read and answer questions themselves, or have a research assistant read the questions to them. The questionnaires included in this study were part of a larger battery of measures that took participants

approximately 90 minutes to complete, although the questionnaires in this study were the first questionnaires that youth completed.

Measures

Betrayal Trauma

Exposure to betrayal trauma was assessed using items adapted from three self-report measures of trauma exposure: the Brief Betrayal Trauma Survey (BBTS; Goldberg & Freyd, 2006), the Traumatic Experiences Screening Inventory for Children, Self-Report (TESI-C/SR; Ippen et al., 2002), and the Juvenile Victimization Questionnaire, 2nd edition (JVQ-2; Hamby, Finkelhor, Omrod, & Turner, 2004). All five items from the original BBTS that were classified as high in betrayal by Goldberg and Freyd were represented in the measure, with the wording of two of these items being modeled after similar items on the TESI-C/SR and JVQ-2. These items represented experiences of physical, sexual, and emotional abuse, as well as witnessing of domestic violence. In addition to the items from the BBTS, ten additional items were included from the TESI-C/SR as well as one item from the JVQ-2 in order to expand the construct of betrayal trauma to include potentially traumatic experiences involving caregiver unavailability, separations, and abandonment. When necessary, items were rephrased to make them more comprehensible to youth. (See the Appendix for a list of items and how they were adapted from the original measures.)

All items were adapted from their original measures such that youth were first asked to identify whether or not they had experienced a particular trauma and then asked follow-up questions to indicate if they had experienced that trauma when they were between the ages of 0 and 5, between 6 and 11, and since they were 12 and older. For the

purposes of this study, the total types of trauma youth experienced in each of the three age categories were calculated. These three scores were then summed to create a total score representing total types of trauma experienced by youth over their lifetime. In addition to creating trauma subscales by developmental period, the total betrayal trauma score was divided into two subscores that corresponded to total betrayal trauma based on the original conceptualization of betrayal trauma, and then additional betrayal trauma based on the expanded definition of betrayal.

Experiential Avoidance

Multidimensional Experiential Avoidance Questionnaire (MEAQ; Gamez et al., 2011). The MEAQ is a measure of experiential avoidance that includes five subscales representing multiple facets of experiential avoidance. In the proposed study, the three subscales with the highest factor loading in validation research (Gamez et al., 2011) were used, resulting in 31 total items from the MEAQ. This included items from the behavioral avoidance subscale (11 items; e.g., "I work hard to avoid situations that might bring up unpleasant thoughts and feelings in me"), distress aversion subscale (13 items; e.g., "I'd do anything to feel less stressed") and distraction and suppression subscale (7 items; e.g., "I usually try to distract myself when I feel something painful"). Items are rated on a 6-point Likert scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). Developers report good internal consistency, construct validity and discriminant validity.

Although the MEAQ is a new measure and only recently has been used in published research (Dvorak, Arens, Kuvaas, Williams, & Kilwein, 2013), there are several reasons why it may be superior to both the Acceptance and Action Questionnaire

(AAQ; Hayes et al., 2004) and its revised version (AAQ-II; Bond et al., 2011), which are the measures most typically utilized as measures of experiential avoidance. Gamez and colleagues (2011) call attention to the narrow focus of the AAQ and AAQ-2 as well as possible criterion contamination resulting from the inclusion of items that assess for psychological inflexibility and general attitudes towards distress, as opposed to the tendency to avoid aversive affect. The three MEAQ subscales had good internal consistency in the current sample, with Cronbach's alphas of .822 for the behavioral avoidance subscale, .869 for the distress aversion subscale, and .852 for the distraction and suppression subscale.

Tension reduction behaviors subscale, Inventory of Altered Self-Capacities (IASC, Briere, 2002). The IASC is a standardized measure with high internal consistency and reliability that assesses affect regulation, identity, and relationship disturbance. In the current study, the tension reduction behaviors subscale (8 items) was used as an additional indicator of experiential avoidance. Items on this scale relate to externalizing behaviors that are aimed at reducing, avoiding, or soothing distress. Participants are asked to rate how often they engage in certain activities in the past month, ranging from 1 (*never*) to 5 (*very often*). Sample items include, "Throwing or hitting things during an argument as a way of getting your anger out" and "Using sex as a way to stop feeling bad." Cronbach's alpha in the current sample was .773.

Emotional Numbing

Emotional Numbing and Reactivity Scale (ENRS; Orsillo et al., 2007). The ENRS is a self-report measure designed to assess the withdrawal of awareness of emotional responses to events or experiences. It includes 62 total items assessing general

numbing, as well as numbing of specific emotions including fear, sadness, anger, and positive emotions. For the purposes of this study, 26 total items were administered assessing general numbing (8 items), numbing of fear (6 items), and numbing of sadness (12 items). Each item is rated on a 5-point Likert-type scale ranging from 1 (*not at all typical of me*) to 5 (*entirely typical of me*). The developers report good internal consistencies, test-retest reliability, and construct validity, and the measure has been used effectively in previous research involving adolescents (e.g., Allwood et al., 2011; Kerig et al., 2012). Typically, the scoring of items is such that higher scores indicate *less* emotional numbing; however, the scoring in the current study was reversed so that results would be easier to interpret by having higher scores indicating higher levels of emotional numbing. Internal consistencies for the three emotional numbing scales used in the current study were as follows, general numbing, $\alpha = 0.708$; numbing of fear, $\alpha = 0.804$; and numbing of sadness, $\alpha = 0.846$.

Callous-Unemotional Traits

The Inventory of Callous Unemotional traits (ICU; Frick, 2004). The ICU is a 24-item self-report measure which assesses three independent factors associated with a higher-order CU dimension. The unemotional factor includes 7 items (e.g., "I don't show my emotions to others"), the callous factor includes 9 items (e.g., "I don't care who I hurt to get what I want"), and the uncaring factor includes 8 items (e.g., "I feel bad or guilty when I do something wrong," reverse coded). Items are rated on a four-point Likert like scale, ranging from 0 (*not at all true*) to 3 (*definitely true*). The scale was later validated in a sample of adolescent offenders (Kimonis et al., 2008) which indicated that excluding two items from the unemotional scale resulted in the best fitting model. The 22-items

identified by Kimonis and colleagues were used in the current study. Supporting this decision, Cronbach's alpha for the 5-item unemotional scale was .726 in the current sample, whereas Crobach's alpha for the 7-item unemotional scale was .575. Cronbach's alpha for the callous and uncaring scales were .727 and .743, respectively.

Data Analysis

Study aims were investigated using a series of confirmatory factor analysis (CFA) and structural equation models performed with Mplus version 7.11 (Muthén & Muthén, 1998-2013). As a first step, the proposed measurement model (Figure 2) was analyzed using CFA to assess for adequate fit. The fit was then compared to alternative, nonnested, measurement models utilizing the Bayesian information criterion (BIC). CFA for each of the models was conducted using full information maximum likelihood (ML) estimation, which allows for the inclusion of cases with missing values on nonpredictor variables. Factors were allowed to correlate in all models.

Once a measurement model with adequate fit was identified, the primary aims of the study were investigated utilizing a series of structural equation models using the ML estimator. Alternative models of acquired callousness were first examined independently to determine whether the significance of specified paths were consistent with each proposed model. For models involving mediation, the significance of indirect effects was determined using nonparametric bootstrapping tests, and chi-square difference tests were used to determine whether including direct effects in mediation improved model fit over the less restrictive model. BIC was then used to compare fit across alternative nonnested models of acquired callousness, following Raftery's (1995) guidelines that a 10-point

BIC difference corresponds to a 150:1 likelihood that the lower BIC represents a better fitting model.

Because Mplus deletes cases with missing values on predictor variables using the ML estimator, models were reexamined using Monte Carlo integration (which allows for inclusion of cases with missing values on predictor variables) to ensure that excluding cases with missing values did not affect the overall pattern of results. Reported results were based on use of the ML estimator to allow for interpretation of indirect effects using bootstrap confidence intervals, which Hayes (2013) refers to as "the more widely recommended method for inference about the indirect effect in mediation analysis" (p. 116).

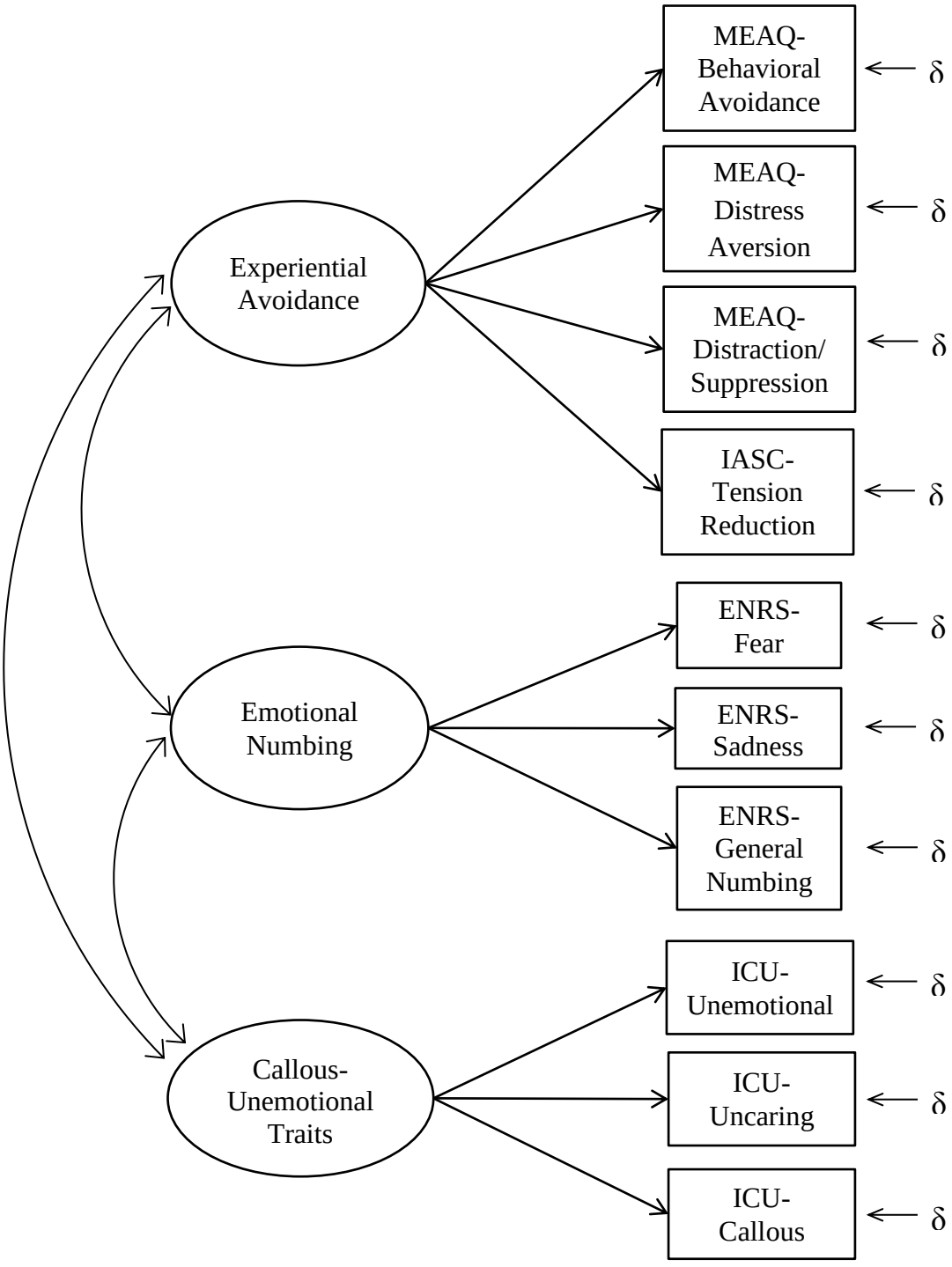

Figure 2. Proposed measurement model. MEAQ = Multidimensional Experiential Avoidance Questionnaire; IASC = Inventory of Altered Self Capacities; ENRS = Emotional Numbing and Reactivity Scale; ICU = Inventory of Callous and Unemotional Traits.

RESULTS

Of the 213 youth included in the current study, 8 subjects (3.7% of participants) did not complete all questionnaires due to refusal to finish (4 subjects), being released from detention before they could finish (3 subjects), or skipping a measure (1 subject). This resulted in four missing values for each of the ENRS subscales, and a total of seven missing values for the betrayal trauma variable (the last measure in the sequence of measures administered). Means and standard deviations of study variables are presented in Table 1, as well as intercorrelations between variables. The subscales of the ENRS and ICU were all positively correlated with each other, as expected. The subscales of the MEAQ were positively correlated with one another, but not strongly correlated with the IASC-tension reduction subscale, suggesting that there may be problems with including tension reduction as part of the same latent variable as the MEAQ subscales. Overall, however, the pattern of correlations suggested that it was plausible to move forward with further analyses.

Measurement Models

Results of the CFA performed on the proposed measurement model indicated poor fit across all fit indices, χ^2 (32, N = 213) = 200.977, p < .001, RMSEA = .157, 90% CI = (.137, .179), SRMR = .108, CFI = .791. Examining the factor loadings for each latent variable (reported in Table 2) indicated that the IASC-tension reduction subscale was not loading onto an "experiential avoidance" latent variable with the three subscales

of the MEAQ, given that the standardized loading was less than 0.20 (Kline, 2011). Furthermore, the correlations among observed variables indicated that the tension reduction subscale did not correlate strongly with the subscales of the MEAQ and had a different pattern of intercorrelations with other observed variables. Because these findings suggest that the tension reduction subscale may be representing a construct independent from the subscales of the MEAQ, the tension reduction subscale was removed as an indicator of experiential avoidance. Although fit indices improved slightly after removal of IASC-tension reduction as an indicator of experiential avoidance, the model overall still had poor fit, χ^2 (24, N = 213) = 137.74, p < .001, RMSEA = .149, 90% CI = (.126, .174), SRMR = .095, CFI = .848, BIC = 11636.

Based on knowledge of the theoretical constructs and the patterns of intercorrelations among observed variables in the present sample, three alternative measurement models were tested based on different configurations of the ENRS and ICU subscales. These three alternative measurement models were first examined with the three subscales of the MEAQ included as an additional latent variable, and then reexamined without this latent variable to allow for testing structural models that would use tension reduction as an alternative index of experiential avoidance. The three respecified measurement models were as follows: 1) A two-factor model in which the ICU-unemotional scale was posited to load onto the emotional numbing latent variable; 2) an alternative two-factor model in which the ENRS general numbing scale was posited to load onto the CU latent variable; and 3), a three-factor model in which numbing of fear and numbing of sadness loaded on one latent variable, ENRS-general numbing and ICU-unemotional comprised a second latent variable, and ICU-callous and ICU-uncaring

formed a third latent variable. Comparison of these models when the MEAQ subscales were included as an additional factor indicated that the three-factor model had the best fit, given that the BIC score for the three-factor model (11589) was more than ten points lower than the BIC scores for either the first or second two-factor models (11632 and 11614, respectively). This suggests that numbing of fear and sadness are distinct from general numbing and callousness, and that the unemotional subscale of the ICU may be more closely associated with the general numbing subscale of the ENRS rather than the callous and uncaring subscales of the ICU.

In order to ensure that this measurement model could be used when tension reduction was used as an alternative index of experiential avoidance, these models were reexamined without the MEAQ subscales included in the model. This resulted in a large, negative residual variance for the ENRS-sadness subscale in all models, most likely due to the fact that some latent variables only had two indicators and perhaps because the other factors were "borrowing" variance from the MEAQ subscales to create a stable measurement model. Because of this, and because prior research typically has examined general numbing, numbing of sadness, and numbing of fear separately (e.g., Allwood et al., 2011; Kerig et al., 2011), the ENRS-numbing of sadness and numbing of fear subscales were excluded from the measurement model, so as to allow for examining the effects of these observed variables separately.

Excluding the numbing of fear and numbing of sadness subscales resulted in a measurement model in which the ENRS-general numbing and ICU-unemotional subscales loaded onto one latent variable representing general numbing, and the ICU-callous and ICU-uncaring subscales loaded onto another latent variable representing

callousness. Results of CFA indicated that this measurement model had adequate fit when the MEAQ latent variable was included in the model, χ^2 (11, N = 213) = 33.68, p < .001, RMSEA = .098, 90% CI = (.062, .137), SRMR = .047, CFI = .953, and when it was not included in the model , χ^2 (1, N = 213) = 1.894, p = .169, RMSEA = .065, 90% CI = (.001, .201), SRMR = .012, CFI = .996. Additionally, comparison of these models to models in which the four general numbing and callousness indicators loaded onto the same latent variable supported separating general numbing and callousness into separate latent variables.

In sum, the results of these measurement models suggested that the tension reduction behaviors scale represented a distinct variant of experiential avoidance as compared to the MEAQ subscales. Furthermore, the numbing of fear and numbing of sadness subscales are likely distinct from general numbing, and therefore should be examined separately in models of acquired callousness. Finally, callousness is best represented by the callous and uncaring subscales of the ICU, whereas general numbing is best represented by the general numbing subscale of the ENRS and unemotional scale of the ICU. The factor loadings for the respecified measurement models used in subsequent analyses are reported in Table 3.

Structural Equation Models Examining Proposed Models of Acquired Callousness

After identifying a measurement model with adequate fit, the first aim of the study was investigated by utilizing a series of structural equation models to identify a model of acquired callousness that included both experiential avoidance and emotional

numbing. The three proposed theoretical models of acquired callousness (serial mediation, multiple mediator, and moderated mediation) were examined separately to determine whether results of each structural equation model were consistent with the corresponding theoretical model. Results were determined to be consistent with a proposed structural model if a) each of the restricted paths in the structural model were significant, b) indirect effects were significant in models involving mediation, and c) fit indices suggested adequate to good fit of the overall model. BIC scores were then used to compare fit across empirically supported models.

Because the results from CFA indicated that tension reduction and the MEAQ latent variable may comprise divergent forms of experiential avoidance, each proposed structural model was first examined using the MEAQ latent variable as an index of experiential avoidance and then reexamined with the tension reduction subscale as an index of experiential avoidance. Similarly, proposed models were first assessed using the general numbing latent variable (comprised of the ENRS-general numbing and ICU-unemotional subscales) as an index of emotional numbing and then reexamined to determine how results varied after replacing the general numbing latent variable with the ENRS-numbing of fear and ENRS-numbing of sadness observed variables. In each structural equation model, the total betrayal trauma score was used as the independent variable and the callousness latent variable (comprised of the uncaring and callous subscales of the ICU) was used as the dependent variable.

Because Mplus excludes cases with missing values on predictor variables using the ML estimator, seven cases were dropped from analyses in Mplus due to missing scores on the betrayal trauma variable. Estimating models using Monte Carlo integration

(which allows for inclusion of cases with missing values on predictor variables) did not affect the overall pattern of results. Therefore, reported results were based on use of the ML estimator to allow for interpretation of indirect effects using bootstrap confidence intervals.

Results of Serial Mediation Models

MEAQ latent variable as experiential avoidance. The serial mediation model was first examined using the MEAQ latent variable to represent experiential avoidance and the general numbing latent variable to represent emotional numbing. Three paths were originally included in the model: the paths from betrayal trauma to experiential avoidance, from experiential avoidance to emotional numbing, and from emotional numbing to callousness. Results indicated that the only significant effect in the model was the path from emotional numbing to callousness ($B = 0.456$, $SE = 0.11$, $p < .001$); paths from betrayal trauma to experiential avoidance, and from experiential avoidance to emotional numbing were not significant. Furthermore, these results did not change when direct paths were added from betrayal trauma to callousness, from betrayal trauma to emotional numbing, and from experiential avoidance to callousness, all of which were also nonsignificant. Given that the MEAQ latent variable was not associated with any other variables in the model, the results did not support a serial mediation model when the MEAQ latent variable was used as an index of experiential avoidance.

Tension reduction and general numbing. When the serial mediation model was reexamined using tension reduction as an index of experiential avoidance, the pattern of results changed. The model was first assessed by restricting three paths in the model, resulting in significant paths from betrayal trauma to tension reduction ($B = 0.149$, $SE =$

0.054, $p = .006$), from tension reduction to emotional numbing ($B = 0.223$, $SE = 0.059$, $p < .001$), and from emotional numbing to callousness ($B = 0.532$, $SE = 0.11$, $p < .001$). The significance of these three paths offered preliminary support for the proposed serial mediation model; however, further analyses were conducted in order to assess whether results were consistent with full or partial serial mediation. As a first step, additional paths corresponding to direct effects in mediation were added to the model and the more restrictive model was compared to the less restrictive model using chi-square difference tests.

Results indicated that including a direct path from betrayal trauma to callousness ($B = -.059$, $SE = 0.03$, $p = .042$) improved model fit, given that the chi square difference test was significant (χ^2 difference = 4.034, $df = 1$, $p = .045$); however, the direction of the effect was negative, which was in the opposite direction as predicted and also opposite in direction from the indirect effects. Adding a path from betrayal trauma to emotional numbness did not improve model fit, as this path was nonsignificant; however, the path from tension reduction to callousness was significant in the positive direction ($B = .165$, $SE = 0.04$, $p < .001$), and its inclusion improved model fit (χ^2 difference = 17.347, $df = 1$, $p < .001$). These results suggest that the paths specifying direct effects from betrayal trauma to callousness and from tension reduction to callousness should be retained in the serial mediation model. Additionally, the significance of these direct effects implies that a "partial" serial mediation model may be a better fit to the data.

The second step in determining whether results supported mediation involved examining the significance of indirect effects using nonparametric bootstrapping tests performed in Mplus. Unstandardized regression coefficients and bootstrapped standard

errors for direct effects in the partial serial mediation model are shown in Figure 3. In regard to indirect effects, results indicated that the total indirect effects from betrayal trauma to callousness were positive and significant, based on the exclusion of zero from the 95% confidence interval (CI) of the indirect models (bootstrapped 95% CI of indirect effects = [.010, .067], B = .034, SE = .015). Examination of specific indirect effects from betrayal trauma to callousness, however, indicated that only the indirect effect through tension reduction was significant (bootstrapped 95% CI of indirect effect = [.006, .052], B = .025, SE = .012), whereas the indirect effect through tension reduction and emotional numbing was not significant (bootstrapped 95% CI of indirect effect = [.000, .026], B = .009, SE = .007). In addition, the indirect effect from betrayal trauma to emotional numbing through tension reduction was significant (bootstrapped 95% CI of indirect effect = [.001, .060], B = .023, SE = .016), as well as the indirect effect from tension reduction to callousness through emotional numbing (bootstrapped 95% CI of indirect effect = [.004, .135], B = .064, SE = .033). Overall, results indicated good fit across all fit indices for this "partial" serial mediation model, χ^2 (6, N = 206) = 9.731, p = .136, RMSEA = .055, 90% CI = (.001, .115), SRMR = .030, CFI = .984, BIC = 5675.

In sum, these results are consistent with a "partial" serial mediation model of acquired callousness in which experiential avoidance, in the form of tension reduction behaviors, fully mediates the association between betrayal trauma and general numbing, and in turn, general numbing partially mediates the association between experiential avoidance and callousness. Additionally, results are consistent with experiential avoidance partially mediating the association between betrayal trauma and callousness; however, the direct and indirect effects were in opposite directions (negative and positive,

respectively), which is an example of "inconsistent mediation" (MacKinnon, Fairchild, & Fritz, 2007).

Tension reduction and numbing of fear and sadness. Based on prior research that suggests that the numbing of specific emotions may be differentially related to acquired callousness (e.g., Allwood et al., 2011; Kerig et al., 2012), and based on the results of CFA performed in the current study, the partial serial mediation model was reexamined to determine whether results were consistent across general numbing, numbing of fear, and numbing of sadness. When numbing of fear was included in the structural equation model, the path from tension reduction to numbing was no longer significant, and therefore the indirect effect from betrayal trauma to numbing of fear through tension reduction was not significant, nor was the indirect effect from tension reduction to betrayal trauma through numbing of fear. These pathways were significant, however, when numbing of sadness was included in the model, and results indicated good fit across all fit indices for the overall model, χ^2 (4, N = 206) = 6.316, p = .176, RMSEA = .053, 90% CI = (.001, .127), SRMR = .047, CFI = .988, BIC = 4832. Thus, these analyses suggest that the model tested is specific to general numbing and the numbing of sadness, but not to numbing of the emotion of fear.

However, there were several notable differences between the model utilizing numbing of sadness and the model utilizing the general numbing latent variable. First, the path from tension reduction to numbing of sadness was negative, rather than positive (B = - .216, SE = .097, p < .001); second, the direct path from betrayal trauma to callousness was no longer significant, and third, the indirect effects from betrayal trauma to numbing of sadness through tension reduction (bootstrapped 95% CI of indirect effect

= [-.079, -.002], *B* = -.032, *SE* = .019) and from tension reduction to callousness through numbing of sadness (bootstrapped 95% CI of indirect effect = [-.074, -.004], *B* = -.039, *SE* = .018) were both negative, rather than positive. This pattern suggests that there are different effects associated with general numbing and numbing of sadness in models of acquired callousness. Specifically, tension reduction behaviors were positively associated with general numbing but negatively associated with numbing of sadness. Additionally, there was a positive indirect effect of betrayal trauma on general numbing through tension reduction, but a negative indirect effect of betrayal trauma on numbing of sadness.

It is important to note that the negative indirect effect of betrayal trauma on numbing of sadness through tension reduction was only significant when a direct path from betrayal trauma to numbing of sadness was not included in the model. When this direct path was included, the total effects (the sum of both direct and indirect effects) from betrayal trauma to numbing of sadness were significant (*B* = -.168, *SE* = .071), but the direct and indirect effects were each nonsignificant. This suggests that experiential avoidance (in the form of tension reduction behaviors) may not help to explain the association between betrayal trauma and numbing of sadness, which is inconsistent with the serial mediation model. It also suggests that the multiple mediator model, which includes only a direct path from betrayal trauma to numbing of sadness and does not separate out total effects into direct and indirect effects, may better fit the data when numbing of sadness is used as an index of emotional numbing.

Results of Multiple Mediator Models

Consistent with prior analyses indicating that the MEAQ latent variable was not associated with any other variables in the model, the multiple mediator model was not supported when the MEAQ latent variable was used as an index of experiential avoidance. When the multiple mediator model was assessed using tension reduction to represent experiential avoidance, a different pattern of results was revealed depending on which variable was used as an index of emotional numbing. The first structural equation model included the general numbing latent variable as an index of emotional numbing. The primary difference between this model and the partial serial mediation model is that there was a direct path from betrayal trauma to general numbing in the multiple mediator model, rather than the indirect path through tension reduction found in the partial serial mediation model. Results indicated that the direct path from betrayal trauma to general numbing was not significant, which is not consistent with the multiple mediator model. Similar results were also obtained when the general numbing latent variable was replaced with the numbing of fear subscale, indicating that the multiple mediator model was not supported when either general numbing or numbing of fear were used as an index of emotional numbing.

Tension reduction and numbing of sadness. When the model was tested using the numbing of sadness variable, the path from betrayal trauma to emotional numbing was significant (B = -.168, SE = .071), but in the negative direction, and there was good model fit, χ^2 (4, N = 206) = 6.316, p = .176, RMSEA = .053, 90% CI = (.001, .127), SRMR = .047, CFI = .988, BIC = 4832. Results of nonparametric bootstrapping tests indicated that the indirect effect from betrayal trauma to callousness through numbing of

sadness was significant in the negative direction (bootstrapped 95% CI of indirect effect = [-.058, -.004], *B* = -.030, *SE* = .013) and the indirect effect through tension reduction was significant in the positive direction (bootstrapped 95% CI of indirect effect = [.012, .072], *B* = .038, *SE* = .015). Adding a direct path from betrayal trauma to callousness did not improve model fit and the path was not significant, suggesting that this path should not be retained in the multiple mediator model. Unstandardized regression coefficients and bootstrapped standard errors for this multiple mediator model are shown in Figure 4.

In sum, when numbing of sadness was utilized as an index of emotional numbing, results supported a multiple mediator model of acquired callousness in which tension reduction and numbing of sadness together fully mediate the association between betrayal trauma and callousness. Although the indirect effect through tension reduction was positive, as predicted, the indirect effect through numbing of sadness was negative, which is in the opposite direction from that expected. These results also suggest that betrayal trauma is associated differently with general numbing and numbing of sadness, as there was a direct, negative effect of betrayal trauma on numbing of sadness, in contrast to the indirect, positive effect of betrayal trauma on general numbing through tension reduction that was found in the serial mediation model.

Results of Moderated Mediation Models

Given that the MEAQ latent variable was found not to be associated with betrayal trauma or callousness in the models tested previously, the moderated mediation model was examined with tension reduction as an index of experiential avoidance.

Tension reduction and general numbing. The moderated mediation model was first assessed utilizing a structural equation model that included an interaction between

tension reduction and the general numbing latent variable. Defining an interaction term with a latent variable creates a new random effects variable, resulting in a random effects model. In a random effects model, the variance of outcome variables (e.g., callousness) varies with different values of predictor variables (e.g., general numbing) which precludes the calculation of chi-square and other fit indices. Because of this, only information criteria were available as an index of fit for the moderated mediation model (BIC=5676). Although indirect effects are not estimated in Mplus for random effects models, the pattern of direct effects was consistent with the prior models tested in which indirect effects involving tension reduction were significant. Specifically, the paths from betrayal trauma to tension reduction (B = .149, SE = 0.054) and from tension reduction to callousness (B = .185, SE = 0.036) were both significant in the positive direction, whereas the path from betrayal trauma to callousness was significant in the negative direction (B = -.071, SE = 0.027). Also consistent with prior models, the path from general numbing to callousness was significant in the positive direction (B = 2.756, SE = 0.608). Furthermore, results indicate that the path from the interaction term to callousness was also significant (B = -.087, SE = .038), indicating that the effects of tension reduction on callousness changed at different levels of general numbing.

Specifically, the negative coefficient of the interaction term indicates that as general numbing increases, the slope of the line reflecting the association between tension reduction and callousness decreases. This can also be seen by examining a plot of the interaction between tension reduction and general numbing (Figure 5). This interaction is actually the opposite of what was expected, as it was hypothesized that the slope would be steeper at higher, rather than lower, levels of emotional numbing based on

the idea that some youth may be qualitatively "better" at achieving emotional numbness when engaging in tension reduction behaviors.

Tension reduction and numbing of fear and sadness. In order to further assess whether the numbing of specific emotions may have different effects than general numbing, two subsequent structural equation models were conducted which replaced the general numbing latent variable first with numbing of sadness and then with numbing of fear. Variables were centered before creating interaction terms. Results indicated that neither numbing of sadness nor numbing of fear moderated the association between tension reduction and callousness, given that the paths from each of the corresponding interaction terms were not significant. This suggests that the moderated mediation model is specific to general numbing and is not supported for models that include either numbing of fear or numbing of sadness as indices of emotional numbing.

Comparison of Models

Comparing across models suggested that when the MEAQ latent variable was used as an index of experiential avoidance, none of the proposed models were supported based on the pattern of nonsignificant paths in each structural equation model. Because of this, comparisons using BIC scores were not necessary. Overall, the results suggested that the MEAQ latent variable did not help to explain the association between betrayal trauma and callousness. In contrast, when the tension reduction variable was used as an index of experiential avoidance, and general numbing was included as a mediator, results supported both a partial serial mediation model as well as a moderated mediation model. In contrast, the multiple mediator model was not supported, given that the path from betrayal trauma to general numbing was not significant. The partial serial mediation

model, which included direct paths from betrayal trauma to callousness and from tension reduction to callousness, was compared to the moderated mediation model using BIC scores. The difference in BIC scores was negligible, suggesting that the two models have comparable fit. However, given that the interaction effect was in the opposite direction from that hypothesized in the moderated mediation model, the partial serial mediation model was the only model for which results were consistent with the underlying theory that informed the proposed model of acquired callousness in the present study.

Because BIC scores can only be used to compare the fit of models that utilize the same variables, separate sets of model comparisons were conducted for models that replaced the general numbing latent variable with numbing of fear and numbing of sadness. Results of the structural equation models utilizing numbing of fear indicated that none of the three proposed models were supported, given that at least one of the paths in each structural model was nonsignificant. In contrast, when numbing of sadness was used as an index of emotional numbing, results offered the most support for the multiple mediator model. Although comparison of BIC scores did not clearly indicate that this model was superior to a serial mediation model, the pattern of direct and indirect effects suggested that results were most consistent with a multiple mediator model. This is based on the finding that when both direct and indirect effects from betrayal trauma to numbing of sadness were included together in a model, the total effects were significant but the direct and indirect effects were each nonsignificant. This indicates that the multiple mediator model, which includes only a direct path from betrayal trauma to numbing of sadness and does not separate out total effects into direct and indirect effects, may be more consistent with results.

Taken together, these results suggest that different models of callousness are supported depending on whether either general numbing or numbing of sadness is included as an index of emotional numbing. The proposed partial serial mediation model was supported when general numbing was used as an index of emotional numbing, whereas a multiple mediator model was supported when numbing of sadness was used as an index of emotional numbing, albeit not in the way that was hypothesized. In other words, although results of both models were consistent with tension reduction partially mediating the association between betrayal trauma and callousness, results suggested that general numbing and numbing of sadness may contribute to callousness in different ways. Specifically, results were consistent with general numbing partially mediating the association between tension reduction and callousness with a positive indirect effect of tension reduction on callousness through general numbing. In contrast, results were consistent with numbing of sadness partially mediating the association between betrayal trauma and callousness, but with a negative indirect effect due to a negative association between betrayal trauma and numbing of sadness.

Comparing the Original versus Expanded Definitions of Betrayal Trauma

Because the current study proposed expanding the definition of betrayal trauma in a developmentally sensitive way, the second aim of the study was to determine if the proposed forms of trauma included in the expanded definition of betrayal trauma would contribute to callousness in similar ways as original forms of betrayal trauma. Because the partial serial mediation model was the most strongly supported by results of structural

equation models, the partial serial mediation model was used to compare the contributions of the original versus expanded definitions of betrayal trauma. A series of three structural equation models were conducted that replaced the total betrayal trauma score used in the partial serial model with one or both of the betrayal trauma subscores. The first model included the *original betrayal trauma subscore*, which only included forms of betrayal trauma included in the original BBTS (Goldberg & Freyd, 2006). The second model included the *expanded betrayal trauma subscore*, which only included the additional forms of betrayal trauma that were proposed as being part of a developmentally sensitive definition of betrayal trauma in the current study, such as physical and emotional unavailability of caregivers. Means, standard deviations, and intercorrelations for the original and expanded betrayal trauma subscores are included in Table 4. The third model included both the original and expanded betrayal trauma scores in the model together. Results from these structural equation models are shown in Table 5.

Results suggest that both the expanded and original forms of betrayal trauma significantly contribute to callousness through tension reduction when they are entered separately in structural equation models (bootstrapped 95% CI of indirect effect for original betrayal trauma = [.010, .074], B = .063, SE = .028; bootstrapped 95% CI of indirect effect for expanded betrayal trauma = [.004, .071], B = .031, SE = .017). When entered together, however, only the indirect effects from original betrayal trauma to callousness remained significant. This suggests that the forms of trauma originally conceptualized as betrayal trauma (e.g., physical abuse, sexual abuse, death or injury of a loved one) may be more strongly associated with callousness when compared to the

additional forms of trauma that were included in the current study (e.g., neglect, separations from caregivers, emotional unavailability of caregivers).

Effects of Betrayal Trauma in Different Developmental Time-Periods

Based on prior theory and research suggesting that there may be varied effects of trauma occurring in different developmental periods, the third aim of the study was to examine the hypothesis that betrayal trauma occurring in early childhood would be a stronger predictor of callousness as compared to betrayal traumas occurring later in childhood or adolescence. The partial serial mediation model (with tension reduction and general numbing as respective indices of experiential avoidance and emotional numbing) was again used to compare the effects of betrayal trauma experienced during different developmental periods. All variables remained constant in the model with the exception of the total betrayal trauma score being replaced with the three betrayal trauma subscores corresponding to trauma experienced in three different developmental time-periods: early childhood (ages 0-5), middle childhood (ages 6-11), and adolescence (ages 12 and up).

Table 4 displays the means and standard deviations of the three betrayal trauma subscores. The effects of betrayal trauma occurring in each developmental time period were first examined in separate structural equation models, and then examined together in a structural equation model. Table 6 displays the unstandardized regression coefficients and standard errors for each of the four structural equation models. Overall, results suggest that only betrayal trauma occurring from age 12 and up was predictive of tension reduction behaviors when each variable was entered separately into structural equation

models. Similarly, the indirect effect from betrayal trauma to callousness through tension reduction was only significant for betrayal trauma occurring from age 12 and up (bootstrapped 95% CI of indirect effect = [.033, .152], B = .084, SE = .031). These effects remained significant when all three betrayal trauma variables were entered into a structural equation model simultaneously. Overall, the results do not support the hypothesis that traumas early in life would be a stronger predictor of callousness, and instead suggest that traumas later in life are more predictive of callousness. Post-hoc analyses using a repeated-measure ANOVA suggest that there are significant differences between the means of betrayal trauma for each developmental period (F = 210.93, p < .001). Specifically, youth on average reported experiencing less trauma in early childhood, and there were a greater number of youth who experienced no betrayal trauma in early childhood. The zero-inflated distribution of betrayal trauma experienced in early childhood may explain why there was not an association between betrayal trauma and callousness, although log-transforming the data did not affect pattern of results.

Table 1

Means, Standard Deviations, and Intercorrelations of Observed Variables

Variables	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Total BT	-	-.034	.058	.039	.19**	-.14*	-.033	.13	.017	-.087	-.032
2. MEAQ-BA	-.034	-	.71***	.60***	.026	-.28***	-.43***	-.074	-.11	-.19**	-.12
3. MEAQ-DA	.058	.71***	-	.59***	.21**	-.23**	-.32***	.13	.060	-.002	-.028
4. MEAQ-DS	.039	.60***	.59***	-	.17*	-.30***	-.30***	-.037	-.041	-.18**	-.16*
5. IASC-TR	.19**	.026	.21**	.17*	-	-.14*	-.067	.16*	.044	.27***	.32***
6. ENRS-S	-.14*	-.28***	-.23**	-.30***	-.14*	-	.72***	.40***	.41***	.31***	.36***
7. ENRS-F	-.033	-.43***	-.32***	-.30***	-.067	.72***	-	.18*	.21**	.22**	.25***
8. ENRS-G	.13	-.074	.13	-.037	.16*	.40***	.18*	-	.47***	.33***	.39***
9. ICU-UE	.017	-.11	.060	-.041	.044	.41***	.21**	.47***	-	.34***	.32***
10. ICU-UC	-.087	-.19**	-.002	-.18**	.27***	.31***	.22**	.33***	.34***	-	.62***
11. ICU-C	-.032	-.12	-.028	-.16*	.32***	.36***	.25***	.39***	.32***	.62***	-
M	8.98	39.96	52.27	31.25	15.09	14.24	11.62	9.18	7.88	8.36	5.30
SD	6.75	9.67	12.83	6.65	5.55	7.91	5.51	5.16	3.07	4.10	3.41
N	206	213	213	213	213	209	209	209	213	213	213

Note. MEAQ = Multidimensional Experiential Avoidance Questionnaire; BA = Behavioral Avoidance; DA = Distress Aversion; DS = Distraction Suppression; IASC = Inventory of Altered Self Capacities; TR = Tension Reduction; ENRS = Emotional Numbing and Reactivity Scale; S = Numbing of sadness; F = Numbing of fear; G = General numbing; ICU = Inventory of Callous and Unemotional traits; UE = Unemotional; UC = Uncaring; C = Callous.
*$p < .05$, **$p < .01$, ***$p < .001$.

Table 2

Factor Loadings of Observed Variables for Proposed Measurement Model

Latent Variable Observed Variable	Unstandardized (*S.E.*)	Standardized
"Experiential Avoidance" BY		
MEAQ-Behavioral Avoidance	1.000 [a]	.846
MEAQ-Distress Aversion	1.306 (*.11*)	.833
MEAQ-Distraction/Suppression	0.582 (*.055*)	.716
IASC-Tension Reduction	0.110 (.053) †	.161 †
"Emotional Numbing" BY		
ENRS-General Numbing	1.000 [a]	.401
ENRS-Numbing of Fear	2.006 (*.36*)	.753
ENRS- Numbing of Sadness	3.659 (.63)	.957
"Callous-Unemotional" BY		
ICU-Callous	1.000 [a]	.792
ICU-Uncaring	1.160 (*.14*)	.765
ICU-Unemotional	0.520 (*.094*)	.459

Note. MEAQ = Multidimensional Experiential Avoidance Questionnaire; IASC = Inventory of Altered Self Capacities; ENRS = Emotional Numbing and Reactivity Scale; ICU = Inventory of Callous and Unemotional traits.
a. Standard error not estimated, not tested for statistical significance.
† $p < .05$. All other unstandardized and standardized estimates are statistically significant at $p < .001$.

Table 3

Factor Loadings of Observed Variables for Redefined Measurement Models used in SEM

	MEAQ Latent Variable Included		MEAQ Latent Variable Excluded	
Latent Variable Observed Variable	Unstandardized (*S.E.*)	Standardized	Unstandardized (*S.E.*)	Standardized
"MEAQ" BY				
Behavioral Avoidance	1.000 [a]	.859	--	--
Distress Aversion	1.272 (*.11*)	.824	--	--
Distraction/ Suppression	0.568 (*.055*)	.709	--	--
"Emotional Numbing" BY				
ENRS-General Numbing	1.000 [a]	.726	1.000 [a]	.725
ICU-Unemotional	0.534 (*.10*)	.653	0.536 (0.10)	.654
"Callousness" BY				
ICU-Callous	1.000 [a]	.811	1.000 [a]	.821
ICU-Uncaring	1.140 (*.17*)	.769	1.111 (0.17)	.760

Note. MEAQ = Multidimensional Experiential Avoidance Questionnaire; ENRS = Emotional Numbing and Reactivity Scale; ICU = Inventory of Callous and Unemotional traits.
a. Standard error not estimated, not tested for statistical significance. All other unstandardized and standardized estimates are statistically significant at $p < .001$.

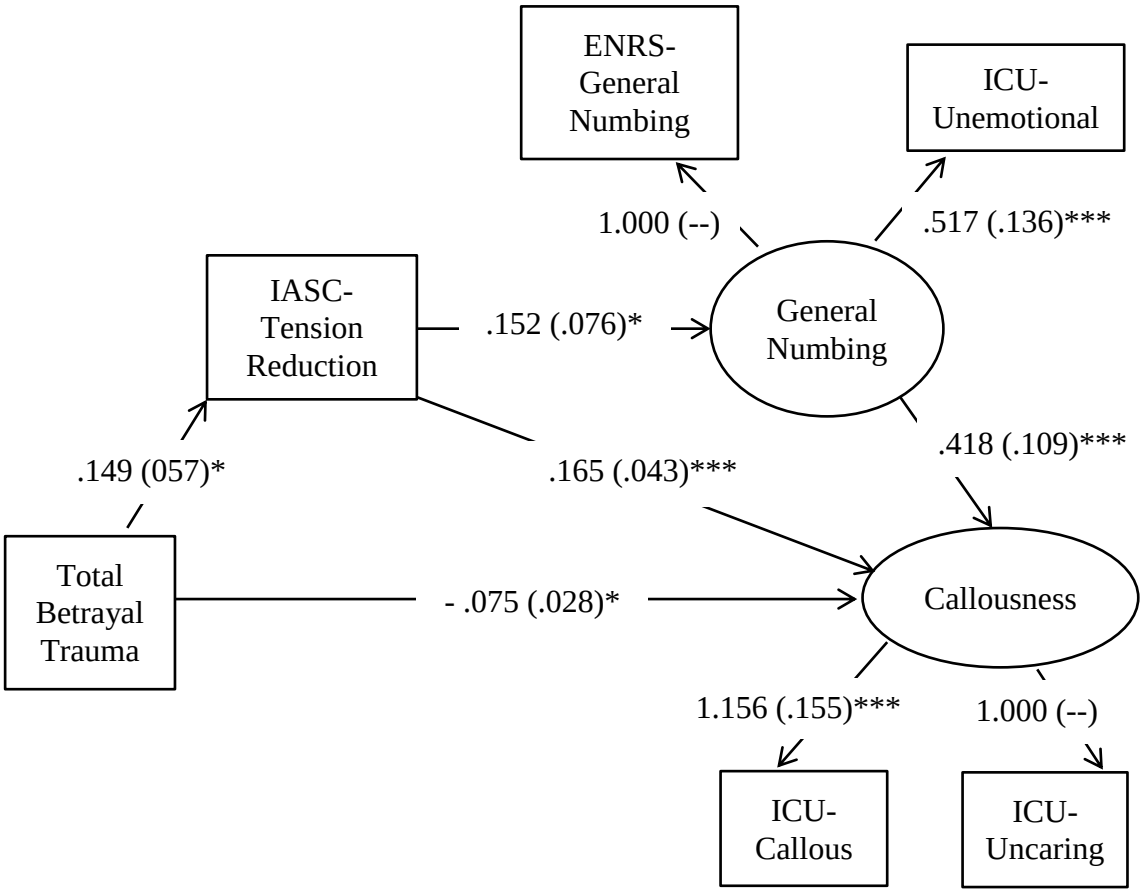

Figure 3. Results of serial mediation model. Results include unstandardized regression coefficients and factor loadings with bootstrapped standard errors; IASC = Inventory of Altered Self Capacities; ENRS= Emotional Numbing and Reactivity Scale; ICU = Inventory of Callous-Unemotional Traits.
* $p < .05$, *** $p < .001$.

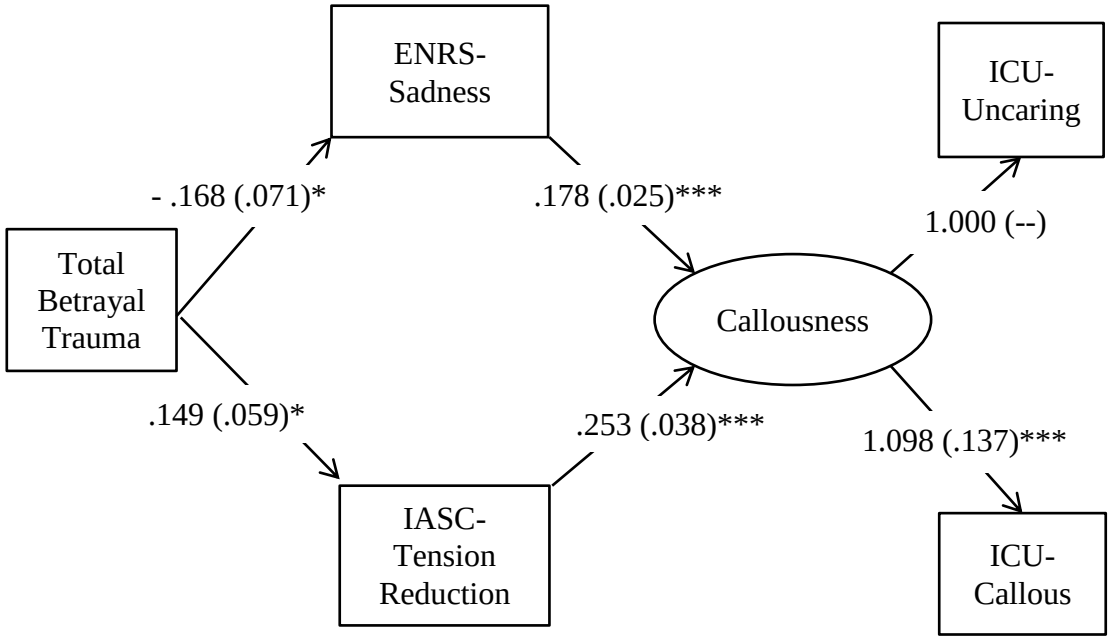

Figure 4. Results of multiple mediator model. IASC = Inventory of Altered Self Capacities; ENRS= Emotional Numbing and Reactivity Scale; ICU = Inventory of Callous-Unemotional Traits; results include unstandardized regression coefficients and factor loadings with bootstrapped standard errors.
* $p < .05$, *** $p < .001$.

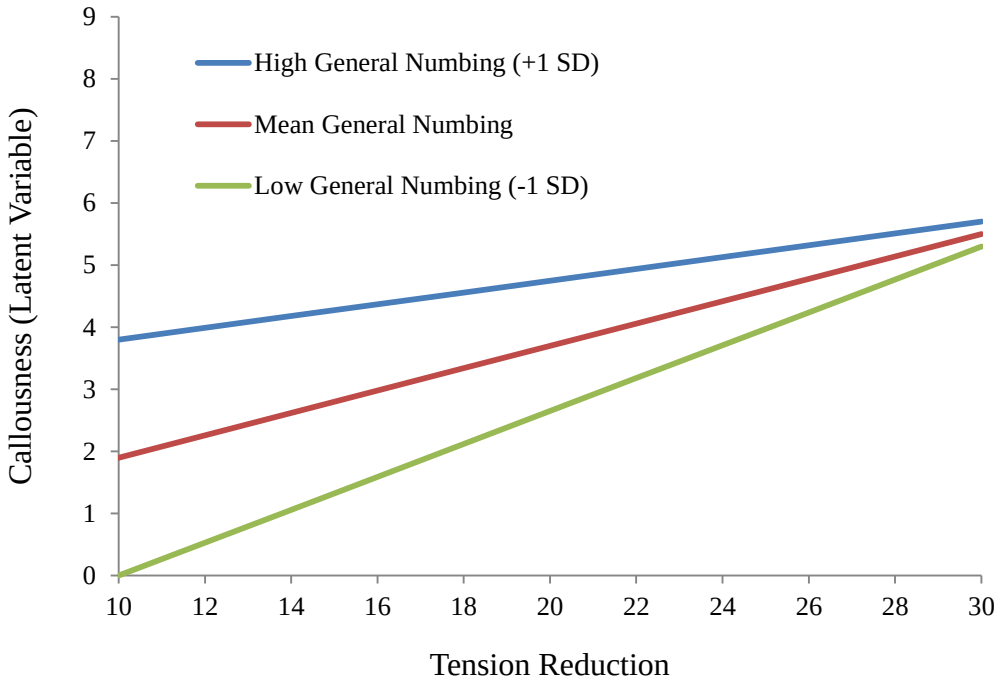

Figure 5. Interaction effects of tension reduction and general numbing on callousness from moderated mediation model.

Table 4

Means, Standard Deviations, and Intercorrelations of Betrayal Trauma Subscores

Betrayal Trauma Subscore		1.	2.	3.	4.	5.
1. Betrayal Trauma 0-5 years		---	.493**	.384**	.583**	.593**
2. Betrayal Trauma 6-11 years		.493**	---	.668**	.742**	.784**
3. Betrayal Trauma 12 and up		.384**	.668**	---	.797**	.720**
4. Original Betrayal Trauma		.583**	.742**	.797**	---	.525**
5. Expanded Betrayal Trauma		.593**	.784**	.720**	.525**	---
	M	1.48	2.88	4.62	6.14	4.69
	SD	*1.90*	*2.88*	*3.29*	*4.79*	*3.73*

Note. ** $p < .01$

Table 5

Results of SEMs Assessing Effects of Original versus Expanded Betrayal Trauma

Variable Entered into SEM →	Original Betrayal Trauma	Expanded Betrayal Trauma	Both Original and Expanded
Dependent Variable Independent Variable	*B* (*S.E.*)	*B* (*S.E.*)	*B* (*S.E.*)
"Callousness" ON			
"General Numbing"	.418 (*.11*)***	.418 (*.11*)***	.442 (*.10*)***
Tension Reduction	.164 (*.043*)***	.157 (*.043*)***	.160 (*.041*)***
Original Betrayal	-.107 (*.042*)*	---	-.099 (*.047*)*
Expanded Betrayal	---	-.082 (*.056*)	-.018 (.062)
"General Numbing" ON			
Tension Reduction	.151 (*.076*)*	.152 (*.077*)*	.107 (*.067*)
Tension Reduction ON			
Original Betrayal	.219 (*.079*)**	---	.209 (*.10*)*
Expanded Betrayal	---	.199 (*.096*)*	.077 (*.13*)

Note. Variables in quotations indicate a latent variable.
* $p < .05$, ** $p < .01$, *** $p < .001$.

Table 6

Results of SEMs Assessing Effects of Betrayal Trauma in Different Developmental Periods

Variable Entered into SEM →	Betrayal Trauma 0-5	Betrayal Trauma 6-11	Betrayal Trauma 12 and up	All three betrayal trauma variables
Dependent Variable Independent Variable	*B* (*S.E.*)	*B* (*S.E.*)	*B* (*S.E.*)	*B* (*S.E.*)
Callousness ON				
Gen. Numb.	.425 (*.11*)***	.416 (*.11*)***	.406 (*.11*)***	.427 (*.10*)***
Tens. Red.	.152 (*.044*)***	.153 (*.042*)***	.181 (*.043*)***	.176 (*.044*)***
BT 0-5	-.085 (*.105*)	---	---	.053 (*.123*)
BT 6-11	---	-.149 (*.067*)*	---	-.027 (*.108*)
BT 12 +	---	---	-.183 (*.065*)**	-.179 (*.096*)
Gen. Numb. ON				
Tens. Red.	.147 (*.078*)	.150 (*.076*)*	.159 (*.075*)*	.113 (*.068*)
Tens. Red. ON				
BT 0-5	.116 (*.22*)	---	---	-.101 (*.685*)
BT 6-11	---	.164 (*.12*)	---	-.337 (*.178*)
BT 12 +	---	---	.462 (*.130*)***	.721 (*.182*)***

Note. Variables in italics indicate a latent variable; Gen. Numb. = General Numbing; Tens. Red. = Tension Reduction.
* p <.05, ** p <.01, *** p <.001.

DISCUSSION

The current study sought to expand upon knowledge of the emotional processes associated with CU traits by using a refined version of betrayal trauma theory (Freyd, 1994, 1996) to inform models of acquired callousness. Overall, the results of the current study offer insight into how experiential avoidance (Hayes et al., 1996) and emotional numbing may contribute to callousness in the aftermath of betrayal trauma. Although the results of confirmatory factor analyses necessitated examining different forms of experiential avoidance and emotional numbing in the models of acquired callousness tested, doing so provided rich information about the circumstances under which both experiential avoidance and emotional numbing may contribute to callousness.

Main Findings

The results of the current study suggest that youth who have had greater exposure to betrayal trauma are at increased risk of engaging in tension reduction behaviors, and in turn, are more likely to be emotionally numb. Consistent with the thesis of this study, Briere (2002) describes tension reduction as the "tendency to react to painful internal states with externalizing behaviors that—although potentially dysfunctional—distract, soothe, or otherwise reduce internal distress," which is consistent with Hayes' and colleagues' (1996) construct of experiential avoidance. The present results also support the proposal that betrayal trauma theory should be refined to focus on affect isolation, given that affect isolation, whether in the form of tension reduction behaviors or

emotional numbing, was predicted by betrayal trauma. Both tension reduction behaviors and emotional numbing may function to isolate the "strong negative emotions that guide [youth] away from the betrayer" (Freyd & DePrince, 2001, p. 141), and allow traumatized youth to retain an attachment to their abuser.

Another important finding of the current study was that results supported experiential avoidance, in the form of tension reduction behaviors, partially mediating the association between betrayal trauma and callousness. This finding is consistent with prior research that has implicated experiential avoidance as a mediator between trauma and other psychological problems (Kaplow et al., 2013; Kashdan et al., 2009; Orcutt et al., 2005; Polusny et al., 2004; Reddy et al., 2006; Shenk et al., 2014). More specifically, however, results supporting tension reduction as a mediator of the association between betrayal trauma and callousness offer further empirical support for Porter's (1996) proposed explanation of secondary psychopathy, which suggests that affective inhibition occurring in response to childhood trauma can result in a pervasive form of emotional detachment such as callousness. The current study therefore adds to the growing body of literature that suggests that for some youth, callousness may arise as an adaptation to trauma (Bennett & Kerig, in press; Kahn et al., 2013; Kerig & Becker, 2010; Kerig et al., 2012; Kimonis et al., 2010; Krischer & Sevecke, 2008; Tatar et al., 2012; Weiler & Widom, 1996).

Although the finding that betrayal trauma was positively associated with callousness through tension reduction behaviors is consistent with prior theory and research, the finding that there was a negative direct effect from betrayal trauma to callousness was unexpected. One potential explanation is that this sample is

heterogeneous and is comprised of youth with acquired callousness as well as primary callousness. The inclusion of youth who have a primary, biologically derived form of callousness that is not a result of trauma may have affected results.

An alternative explanation, however, is based on the likelihood that developmental trajectories associated with trauma vary depending on what may be most adaptive for a particular youth. Betrayal trauma theory suggests that it would be adaptive for youth to inhibit affect and emotionally detach in order to maintain attachment to their abusive caregivers. However, this assumes that youth do not have other supportive adults or caregivers on whom they could depend. If youth are placed with other caregivers who are emotionally responsive, it may be *more* adaptive for them to *increase* their emotional expressivity in order to elicit support and protection from caregivers. There may be a subset of youth in juvenile detention for whom this applies, accounting for the negative direct effect of betrayal trauma on callousness.

The results of the current study also shed light on how experiential avoidance and emotional numbing may be related to one another in a model of acquired callousness. Prior research found that general numbing mediated the association between trauma and CU traits (Kerig et al., 2012), indicating that trauma was directly associated with general numbing. Results of the current study, however, suggest that the association between betrayal trauma and general numbing may be mediated by tension reduction behaviors, consistent with the proposed serial mediation model of acquired callousness. Additionally, results suggesting that general numbing may partially mediate the association between tension reduction and callousness implies that youth engaging in tension reduction behaviors may be more likely to display a callous façade, which in part

may be explained by an increased experience of emotional numbing and an increased tendency to inhibit expression of emotions.

Although the primary aim of the study was to identify a model of acquired callousness that included both experiential avoidance and emotional numbing, the process of identifying a measurement model that adequately fit the data has implications for how experiential avoidance, emotional numbing, and CU traits are measured and assessed in the research literature. To begin with, the finding that the IASC tension reduction subscale did not load onto a latent variable with the MEAQ subscales initially suggested that the MEAQ latent variable and tension reduction behaviors represented divergent forms of experiential avoidance. This was further supported by findings that these variables behaved differently in structural equation models.

Although conceptually the MEAQ latent variable and tension reduction variable both represent the extent to which individuals engage in processes aimed at reducing aversive affect, they vary in the extent to which they assess maladaptive versus adaptive forms of experiential avoidance. The tension reduction subscale of the IASC includes items that would be considered maladaptive forms of experiential avoidance (use of aggression, sex, and self-harm to reduce emotional pain). The items on the MEAQ, however, do not specify the methods by which people may engage in distraction, suppression or avoidance. For example, a person who engages in distraction with substance use, sex, and aggression may have similar scores on the MEAQ as someone who engages in distraction by reading, drawing, and running. Based on the finding that only tension reduction behaviors were associated with callousness in the current study, the association between experiential avoidance and callousness likely varies depending

on whether youth are engaging in maladaptive versus adaptive forms of experiential avoidance. Although the "umbrella concept" of experiential avoidance may be meaningful in other areas of research, the current study suggests that maladaptive forms of experiential avoidance may be most relevant to the association between trauma and callousness.

Another important implication from the results of measurement models follows from attempts to identify two distinct latent variables utilizing the subscales of the ENRS and ICU. Although previous research (e.g., Kerig et al., 2012) has assumed that these scales represent distinct constructs, the results of the current study suggest that they may represent overlapping constructs. Specifically, the unemotional scale of the ICU may be consistent with a generalized form of emotional numbing, whereas numbing of fear and sadness may represent yet a different construct. This was supported not only by CFA in the current study, but also by the finding that replacing the general numbing latent variable with the numbing of sadness variable produced markedly different results.

One potential explanation for the difference in results is that the items included on the numbing of sadness subscale (e.g., "Even if I lose someone I care about, I don't feel sad") may represent a greater sense of emotional detachment than do the items on the ICU-unemotional scale (e.g., "I hide my feelings from others"). In fact, the unemotional subscale of the ICU may better capture the construct of expressive inhibition of emotions (Clapp et al., 2014) rather than reduced experience of emotions. The fact that both betrayal trauma and tension reduction behaviors were found to be positively associated with general numbing but negatively associated with numbing of sadness suggests that youth who have experienced betrayal trauma and who are engaging in tension reduction

behaviors may still be experiencing negative emotions, such as sadness, but may avoid outwardly displaying these emotions to others and present with a callous façade.

Additionally, the finding that numbing of sadness was negatively associated with betrayal trauma but positively associated with callousness suggests that numbing of sadness may help to differentiate between primary and acquired variants of callousness. This is consistent with the idea that youth with primary and acquired variants of callousness can be differentiated based on the presence of anxiety (Kahn et al., 2013; Tatar et al., 2012), with higher levels of anxiety associated with acquired callousness and lower levels associated with primary callousness. Following this logic, numbing of sadness may represent a more pervasive and severe form of emotional detachment that is only associated with primary callousness. Supporting this idea, Bennett and Kerig (in press) recently found that after differentiating between youth with primary and acquired variants of callousness, numbing of fear and sadness were only associated with primary callousness. With this in mind, the inclusion of youth with primary callousness in the sample could help explain why there was a positive association between numbing of sadness and callousness found in the present study, even though youth who have experienced betrayal trauma and have acquired callousness may be less likely to experience numbing of sadness. This emphasizes the importance of further understanding differences between primary and acquired variants of callousness, given that there may be different emotional processes associated with primary versus acquired callousness.

In addition to investigating how both experiential avoidance and emotional numbing may contribute to acquired callousness, the current study expanded on prior research by comparing the effects of betrayal trauma occurring in different

developmental periods. Although it was hypothesized that trauma occurring in early childhood would be a stronger predictor of callousness, only trauma occurring in adolescence was found to be associated with callousness. It is possible that these results may be explained by the fact that youth reported experiencing significantly greater levels of trauma occurring in adolescence than in other developmental time periods; however, there are some prior research studies that lend support to the findings of the current study.

Although most research suggests that earlier onset of trauma is associated with increased psychological problems later in life (English et al., 2005; Kaplow et al., 2005; Keiley et al., 2001), some research suggests that when traumas occur later in childhood and adolescence, youth may be at greater risk for externalizing problems, including delinquency (Ireland, Thornberry, & Smith, 2002; Kaplow & Widom, 2007; Stewart, Livingstron, & Dennison, 2008; Thornberry et al., 2001). In an effort to explain why adolescence may be a heightened time of risk for youth experiencing maltreatment and abuse, Kerig (in press) calls attention to the developmental changes associated with adolescence, including hormonal changes and the renegotiation of relationships with caregivers, that may contribute to increased stress and vulnerability for youth. Additionally, adolescents may be more likely to be blamed for their exposure to trauma and therefore may be less likely to receive appropriate supports and interventions (Kerig, in press; Ryan, Williams, & Courtney, 2013). Furthermore, youth who have experienced trauma in early childhood may have had more time to engage in recovery processes, either through the presence of other supportive adults or caregivers, receiving treatment, or natural resilience processes (Smith, Thornberry, & Ireland, 2004). Collecting information about whether youth have received treatment or have had other supportive

caregivers in their life may further understanding of the circumstances under which betrayal trauma may be associated with callousness.

The empirical and theoretical support for the finding that only traumas experienced in adolescence were associated with callousness also may help to explain why the types of traumas included in the expanded definition of betrayal trauma—such as neglect and traumatic separations—were not as strong predictors of callousness as were the original types of betrayal trauma. Experiences of neglect and traumatic separations from caregivers may be more likely to be experienced in early childhood and therefore may not be as strongly associated with callousness. Alternatively, these experiences may be perceived as "less severe" forms of betrayal compared to physical and sexual abuse. They also may be perceived as less life-threatening, which is an additional dimension of traumatic experience that contributes to posttraumatic stress (e.g., Kelley et al., 2012) and that may also contribute to callousness.

Limitations and Directions for Future Research

Although the current study expands upon prior research and knowledge regarding acquired callousness, it is important to acknowledge how the limitations of the current study impact the interpretation of results and how they can be used to inform future research. Perhaps one of the most significant limitations of the study is the cross-sectional design, which limits the conclusions that can be drawn about the direction of influence between variables. Longitudinal research would offer more convincing support for the partial serial mediation model proposed in the current study or perhaps lead to an alternative model of acquired callousness in which there may be a developmental

progression from lesser to greater states of emotional detachment over time. Furthermore, longitudinal research may be better able to inform clinical interventions by identifying critical points at which youth may be more vulnerable to developing callousness. For example, it may only be when youth engage in chronic experiential avoidance that they become vulnerable to displaying CU traits over time.

Another significant limitation of the study is that it did not include a measure that could differentiate between primary versus acquired variants of callousness. Utilizing a heterogeneous sample that likely included youth with acquired callousness as well as youth with primary callousness complicates the interpretation of results. Given that prior research has been able to differentiate between primary and acquired variants of callousness on reported levels of anxiety (Kahn et al., 2013; Tatar et al., 2012), including a measure of anxiety in future research would allow for the proposed models of acquired callousness to be examined in a "cleaner" sample of youth with acquired callousness. Furthermore, empirically demonstrating that a model of acquired callousness fits better with youth who have been identified as having acquired callousness rather than with youth who have primary callousness would further our understanding of the emotional processes associated with variants of callousness.

Future research could also improve on the current study by including parent-report measures of some of the variables in the study. Youth reports of trauma typically are viewed as being more accurate, as parents have been found to underestimate their children's exposure to trauma (e.g., Ceballo, Dahl, Aretakis, & Ramirez, 2001; Jaffe, Wolfe, & Wilson, 1990; Lewis et al., 2010; Selner-O'Hagan, Kindlon, Buka, Raudenbush, & Earls, 1998) and their symptoms of posttraumatic stress (e.g., Ceballo, et

al., 2001; Meiser-Stedman, Smith, Glucksman, Yule, & Dalgleish, 2007, 2008); however, the discrepancies between child and parent reports of trauma are themselves meaningful (Ferdinand, van der Ende, & Verhulst, 2006; Goodman, De Los Reyes, & Bradshaw, 2010; Guion, Mrug, & Windle, 2009; Lewis et al., 2010) and may have implications for acquired callousness. In regards to CU traits, research comparing parent versus child report versions of the ICU have found that although both youth and parent report scores predicted delinquency risk, parents' scores were found to be a stronger correlate of delinquency and only parent-report of CU traits was found to be associated with risk for sexual offending (White, Cruise, & Frick, 2009). This offers support for including both parent and youth report of CU traits in future research.

Another possible limitation of the current study was the way in which certain variables were operationalized. Experiential avoidance is a relatively new construct and the tools that are available to assess it are relatively limited. The AAQ-2 has been the standard measure of experiential avoidance in previous research (e.g., Kashdan et al., 2009; Marx & Sloan, 2005; Morina et al., 2008; Orcutt et al., 2005; Plumb et al., 2004), but has been criticized for its narrow focus as well as possible criterion contamination resulting from the inclusion of items that assess for psychological inflexibility and general attitudes towards distress (Gamez et al., 2011). Although the MEAQ addresses the limitations of the AAQ-2 and may better capture the broader concept of experiential avoidance, it has not been used previously with adolescents. Although the results of the current study could be attributed to the fact that only maladaptive forms of experiential avoidance contribute to acquired callousness, it may be worth reexamining the effects of

experiential avoidance after a version of the MEAQ or alternative measure of experiential avoidance has been validated for use with adolescents.

Another possible limitation of the current study is the way in which betrayal is conceptualized. In the current study, betrayal is defined by perpetration by someone on whom the victim depends (a caregiver) or by someone to whom the victim is close. This has been a common way in which betrayal traumas have been previously conceptualized and measured in the past (e.g., Allard, 2009; Goldsmith et al., 2012; Kerig et al., 2012; Martin et al., 2011); however, recent research with adults suggests that assessing the cognitive appraisals associated with trauma may be a more meaningful way to measure betrayal trauma, given that the types of traumatic experiences experienced as betrayal may vary across individuals. Supporting this idea, research by DePrince and colleagues (2013) suggests that cognitive appraisals of the trauma (including betrayal, self-blame, shame, anger, alienation, and fear) were more predictive of posttraumatic stress symptoms than were the cumulative experience of traumas involving perpetration by someone on whom the victim depends. Prior research also suggests that negative appraisals of trauma are more predictive of posttraumatic stress symptoms than the dose and severity of exposures (Cromer & Smyth, 2010; Ellis, Nixon & Williamson, 2009; Fairbrother & Rachman, 2006). Future research into betrayal trauma and acquired callousness may benefit from assessing cognitive appraisals of betrayal to determine if it is also a meaningful construct among adolescents.

Another important direction for future research is to explore whether there may be different developmental processes associated with acquired callousness for girls versus boys. Recent theory and research suggests that the processes leading to acquired

callousness may be different for boys and girls (Moretti & Odgers, 2006; Moretti, Odgers, Osbuth & Reebye, 2006). Although recent research by Kerig and colleagues (2012) did not find that gender moderated the effects of betrayal trauma and emotional numbing on acquired callousness, there still may be gender differences in the models examined in the current study. Because the sample size and distribution of genders did not allow for sufficient power to adequately test for gender differences, future research could seek to replicate these findings with larger populations of delinquent youth.

Similarly, future research could explore whether the current findings are consistent across ethnic groups. The current sample included a relatively high percentage of ethnic minority youth, particularly Latino youth, which is perhaps due to the over-representation of ethnic minority youth in the juvenile justice system. The sample size, however, limited the ability to specifically test whether ethnicity would have moderated results of the current study. Previous research suggests that the association between trauma and CU traits may be consistent across ethnic groups. For example, Kahn and colleagues' (2013) research on primary versus acquired callousness included a sample of 90% African American youth, and Kimonis and colleagues' (2012) sample included 94% ethnic minority youth (53% Latino, 29% African American, and 12% biracial/multiracial). Although the association between trauma and acquired CU traits may be consistent across ethnic groups, it is unknown whether the emotional processes that may account for this association may be similar. With this in mind, future research could explore how cultural factors may moderate the emotional processes that may account for the association between trauma and CU traits with the intention of identifying risk and protective factors for juvenile justice involved youth.

Despite these limitations, the results of the current study expand on prior research and theories of acquired callousness and offer greater understanding of the emotional processes that may account for the association between trauma and CU traits. Because youth who display CU traits represent a subset of youth who tend to commit the most severe offenses (e.g., Frick & Dickens, 2006; Frick & White, 2008; Kruh et al., 2005), understanding the emotional processes that may contribute to callousness is necessary for the development of more effective interventions for youth in the juvenile justice system. Research differentiating between primary and acquired callousness emphasizes the need for trauma-informed systems of care for youth in the juvenile justice system. The results of the current study offer further support for the importance of trauma-informed interventions, and also suggest that targeting maladaptive forms of experiential avoidance through development of improved coping strategies may be beneficial. Further research into the emotional processes involved in acquired callousness may help to inform the development of more effective interventions for youth in the juvenile justice system.

APPENDIX: REVISED AND ORIGINAL WORDING OF BETRAYAL

TRAUMA ITEMS

Current Study	Original Wording	Measure Source
1. Have you ever seen someone you cared a lot about seriously hurt a member of your family?	Have you witnessed someone with whom you were very close deliberately attack another family member so severely as to result in marks, bruises, blood, broken bones, or broken teeth?	Brief Betrayal Trauma Survey (BBTS)
2. Has someone you cared a lot about seriously hurt you on purpose? Like hitting, pushing, choking, shaking, biting, or burning you? Or punished you so you were badly hurt or bruised?	Have you been deliberately attacked that severely by someone with whom you were very close? (BBTS) Has someone ever physically attacked you, like hitting, pushing, choking, shaking, biting, or burning you? Or punished you so you were badly hurt or bruised?	BBTS and Traumatic Events Screening Inventory for Children, Self-Report (TESI-C/SR)
3. At any time in your life did you get scared or feel really bad because someone you were close to called you names, said mean things to you or said they didn't want you?	Have you been emotionally or psychologically mistreated over a significant period of time by someone with whom you were very close? (BBTS) At any time in your life, did you get scared or feel really bad because grown-ups in your life called you names, said mean	BBTS and Juvenile Victimization Questionnaire-2nd edition (JVQ-2)

	things to you, or said they didn't want you?	
4. Have you ever seen someone you cared a lot about (such as a parent, brother, sister or boyfriend/girlfriend) commit suicide, get killed, or get seriously hurt by another person?	Have you ever witnessed someone with whom you were very close (such as a parent, brother or sister, caretaker, or intimate partner) committing suicide, being killed, or being injured by another person so severely as to result in marks, bruises, burns, blood, or broken bones?	BBTS
5. Have you ever been forced to have some form of sexual contact, such as touching or having sex, by someone you cared a lot about (such as a parent or boyfriend/girlfriend)?	Were you ever made to have some form of sexual contact, such as touching or penetration, by someone with whom you were very close (such as a parent or lover)?	BBTS
6. Have you ever seen or heard your parents physically fighting, hitting, slapping, kicking, or throwing things at each other?	Have you ever seen or heard people in your family physically fighting, hitting, slapping, kicking, or throwing things at each other?	TESI-C/SR
7. Have there been any times when someone you knew was so badly injured or so sick that he/she almost died or had to go to the hospital?	Have there been any times when someone close to you was so badly injured or so sick that he/she almost died or had to go to the hospital?	TESI-C/SR

8. Has anyone you know ever died, not counting if they were old and died naturally?	Has someone close to you ever died, not counting someone who was old and died naturally?	TESI-C/SR
9. Have you ever watched a parent or guardian use drugs, like smoking drugs or using needles?	Have you ever watched people using drugs, like smoking drugs or using needles?	TESI-C/SR
10. Has someone you cared a lot about ever tried to kill or hurt him/herself really badly on purpose (for example, stabbing, cutting or burning him/herself, or over-dosing on drugs or pills)?	Has someone close to you ever tried to kill or hurt him/herself really badly on purpose (for example, stabbing, cutting or burning him/herself, or taking too many pills or drugs [over-dose]?	TESI-C/SR
11. Has one of your parents ever been arrested, put in jail or prison, or taken away by the police, soldiers, or other authorities?	Has one of your family members ever been arrested, put in jail or prison, or taken away by the police, soldiers, or other authorities?	TESI-C/SR
12. Have you ever been taken away from your parents (removed from parents' custody/placed in foster home)?	Have you ever been separated from someone who you depend on for love or security for more than a few days?	TESI-C/SR
13. Have you ever had a parent go away and leave you for an extended period of time?	Have you ever been separated from someone who you depend on for love or security for more than a few days?	TESI-C/SR

14. Have you ever had a parent threaten to leave you or send you away because you were bad?	Have you ever been told repeatedly that you were no good, or that the people you live with were going to leave or send you away because you were bad?	TESI-C/SR
15. Have you ever had a time in your life when you did not have the right care—like not having enough to eat, being homeless, being left alone when you were too young to care for yourself, or not being taken to the doctor when you were sick or not having a safe place to stay?	Have you ever had a time in your life when you did not have the right care—like not having enough to eat, being homeless, being left alone when you were too young to care for yourself, or being left with someone using drugs?	TESI-C/SR
16. Sometimes a family fights over where a child should live. At any time in your life, did someone you were close to take, keep, or hide you to stop you from being with one of your parents?	Sometimes a family fights over where a child should live. At any time in your life, did a parent take, keep, or hide you to stop you from being with another parent?	JVQ-2

REFERENCES

Abram, K. M., Choe, J. Y., Washburn, J. J., Teplin, L. A., King, D. C., & Dulcan, M. K. (2008). Suicidal ideation and behaviors among youths in juvenile detention. *Journal of the American Academy of Child & Adolescent Psychiatry, 47*(3), 291-300. doi: 10.1097/CHI.0b013e318160b3ce

Abram, K. M., Teplin, L. A., Charles, D. R., Longworth, S. L., McClellan, G. M., & Dulcan, M. K. (2004). Posttraumatic stress disorder and trauma in youth in juvenile detention. *Archives of General Psychiatry, 61*, 403-410. doi: 10.1001/archpsyc.61.4.403

Allard, C. B. (2009). Prevalence and sequelae of betrayal trauma in a Japanese student sample. *Psychological Trauma: Theory, Research, Practice, and Policy*, *1*(1), 65-77. doi: 10.1037/a0015053

Allwood, M. A., & Bell, D. J. (2008). A preliminary examination of emotional and cognitive mediators in the relations between violence exposure and violent behaviors in youth. *Journal of Community Psychology*, *36*(8), 989-1007. doi: 10.1002/jcop.20277

Allwood, M. A., Bell, D. J., & Horan, J. (2011). Posttrauma numbing of fear, detachment, and arousal predict delinquent behaviors in early adolescence. *Journal of Clinical Child & Adolescent Psychology*, *40*(5), 659-667. doi: 10.1080/15374416.2011.597081

American Psychiatric Association (2000). *Diagnostic and Statistical Manual of Mental Disorders (4th ed., text revision)*. Washington, DC: American Psychiatric Association.

Barlow, M. R., & Freyd, J. J. (2009). Adaptive dissociation: Information processing and response to betrayal. In P. F. Dell & J. A. McNeil (Eds.), *Dissociation and the dissociative disorders: DSM-V and beyond* (pp. 93-105). New York: Routledge.

Bennett, D. C. & Kerig, P. K. (in press). Investigating the construct of trauma-related acquired callousness among juvenile-justice involved youth: Difference in emotion processing. *Journal of Traumatic Stress.*

Bennett, D. C., Kerig, P. K., Chaplo, S., McGee, A. B., & Baucom, B. R. (in press). Validation of the five-factor model of PTSD symptom structure among delinquent

youth. *Psychological Trauma*.

Bowlby, J. (1973). *Attachment and loss: Vol. 2 separation*. New York: Basic Books.

Briere, J., & Runtz, M. (2002). The Inventory of Altered Self-Capacities (IASC): A standardized measure of identity, affect regulation, and relationship disturbance. *Assessment, 9*, 230-239. doi: 10.1177/1073191102009003002

Ceballo, R., Dahl, T. A., Aretakis, M. T., & Ramirez, C. (2001). Inner-city children's exposure to community violence: How much do parents know? *Journal of Marriage and Family, 63*(4), 927-940. doi: 10.1111/j.1741-3737.2001.00927.x

Christian, R. E., Frick, P. J., Hill, N. L., Tyler, L., & Frazer, D. R. (1997). Psychopathy and conduct problems in children: II. Implications for subtyping children with conduct problems. *Journal of the American Academy of Child & Adolescent Psychiatry, 36*(2), 233-241. doi: 10.1097/00004583-199702000-00014

Cicchetti, D. (2006). Development and psychopathology. In D. Cicchetti & D. J. Cohen (Eds.), *Developmental psychopathology. Volume I: Theory and method* (2nd ed., pp. 1-23). New York: Wiley.

Clapp, J. D., Jones, J. M., Jaconis, M., Olsen, S. A., Woodward, M. J., & Beck, J. G. (2013). Expressive inhibition following interpersonal trauma: An analysis of reported function. *Journal of Anxiety Disorders, 28*(2), 230-236. doi: 10.1016/j.janxdis.2013.11.007

Cloitre, M., Stolbach, B. C., Herman, J. L., Kolk, B. V. D., Pynoos, R., Wang, J., & Petkova, E. (2009). A developmental approach to complex PTSD: Childhood and adult cumulative trauma as predictors of symptom complexity. *Journal of Traumatic Stress, 22*(5), 399-408. doi: 10.1002/jts.20444

Cromer, L. D., & Smyth, J. M. (2010). Making meaning of trauma: Trauma exposure doesn't tell the whole story. *Journal of Contemporary Psychotherapy, 40*(2), 65-72. doi: 10.1007/s10879-009-9130-8

Ellis, A. A., Nixon, R. D., & Williamson, P. (2009). The effects of social support and negative appraisals on acute stress symptoms and depression in children and adolescents. *British Journal of Clinical Psychology, 48*(4), 347-361. doi: 10.1348/014466508X401894

Elzy, M., Clark, C., Dollard, N., & Hummer, V. (2013). Adolescent girls' use of avoidant and approach coping as moderators between trauma exposure and trauma symptoms. *Journal of Family Violence, 28*(8), 763-770. doi: 10.1007/s10896-013-9546-5

English, D. J., Graham, J. C., Litrownik, A. J., Everson, M., & Bangdiwala, S. I. (2005). Defining maltreatment chronicity: Are there differences in child outcomes? *Child Abuse & Neglect, 29*(5), 575-595. doi: 10.1016/j.chiabu.2004.08.009

Fairbrother, N., & Rachman, S. (2006). PTSD in victims of sexual assault: Test of a major component of the Ehlers–Clark theory. *Journal of Behavior Therapy and Experimental Psychiatry, 37*(2), 74-93. doi: 10.1016/j.jbtep.2004.08.004

Feiring, C., Miller-Johnson, S., & Cleland, C. M. (2007). Potential pathways from stigmatization and internalizing symptoms to delinquency in sexually abused youth. *Child Maltreatment, 12*, 220-232. doi: 10.1177/1077559507301840

Ferdinand, R. F., van der Ende, J., & Verhulst, F. C. (2006). Prognostic value of parent–adolescent disagreement in a referred sample. *European Child & Adolescent Psychiatry*, *15*(3), 156-162. doi: 10.1007/s00787-005-0518-z

Feuer, C. A., Nishith, P., & Resick, P. (2005). Prediction of numbing and effortful avoidance in female rape survivors with chronic PTSD. *Journal of Traumatic Stress, 18*(2), 165-170. doi: 10.1002/jts.20000

Flack, W. F., Jr., Litz, B. T., Hsieh, F. Y., Kaloupek, D. G., & Keane, T. M. (2000). Predictors of emotional numbing, revisited: A replication of and extension. *Journal of Traumatic Stress, 13*, 611-618. doi: 10.1023/A:1007806132319

Foa, E. B., Riggs, D. S., & Gershuny, B. S. (1995). Arousal, numbing, and intrusion: Symptom structure of PTSD following assault. *American Journal of Psychiatry, 152*, 116-120.

Foa, E. B., Zinbarg, R., & Rothbaum, B. O. (1992). Uncontrollability and unpredictability in posttraumatic stress disorder: An animal model. *Psychological Bulletin, 112*, 218-238.

Ford, J. D. (2010). Complex adult sequelae of early life exposure to psychological trauma. In R. A. Lanius, E. Vermetten, & C. Pain (Eds.), *The impact of early life trauma on health and disease: The hidden epidemic* (pp. 69-76). New York, NY: Cambridge University Press. doi: 10.1017/CBO9780511777042.009

Freedenthal, S., Vaughn, M. G., Jenson, J. M., & Howard, M. O. (2007). Inhalant use and suicidality among incarcerated youth. *Drug and Alcohol Dependence, 90*(1), 81-88. doi: 10.1016/j.drugalcdep.2007.02.021

Freyd, J. J. (1994). Betrayal trauma: Traumatic amnesia as an adaptive response to childhood abuse. *Ethics and Behavior, 4*, 307-329. doi: 10.1207/s15327019eb0404_1

Freyd, J. J. (1996). *Betrayal trauma: The logic of forgetting childhood abuse*. Cambridge, MA: Harvard University Press.

Freyd, J. J., & Deprince, A. P. (2001). Perspectives on memory for trauma and cognitive processes associated with dissociative tendencies. *Journal of Aggression, Maltreatment and Trauma, 4*(2), 137-163. doi: 10.1300/J146v04n02_07

Freyd, J. J., Klest, B., & Allard, C. B. (2005). Betrayal trauma: Relationship to physical health, psychological distress, and a written disclosure intervention. *Journal of Trauma and Dissociation, 6*(3), 83-104. doi: 10.1300/J229v06n03_04

Freyd, J. J., Martorello, S. R., Alvarado, J. S., Hayes, A. E., & Christman, J. C. (1998). Cognitive environments and dissociative tendencies: Performance on the standard Stroop task for high versus low dissociators. *Applied Cognitive Psychology, 12*, 91-103. doi: 10.1002/(SICI)1099-0720(199812)12:7%3CS91::AID-ACP599%3E3.0.CO;2-Z

Frick, P. J., Bodin, S. D., & Barry, C. T. (2000). Psychopathic traits and conduct problems in community and clinic-referred samples of children: Further development of the psychopathy screening device. *Psychological Assessment, 12*(4), 382. doi: 10.1037/1040-3590.12.4.382

Frick, P. J., & Dickens, C. (2006). Current perspectives on conduct disorder. *Current Psychiatry Reports, 8*(1), 59-72. doi: 10.1007/s11920-006-0082-3

Frick, P. J., & Ellis, M. (1999). Callous-unemotional traits and subtypes of conduct disorder. *Clinical Child and Family Psychology Review, 2*, 149-168.

Frick, P. J., & White, S. F. (2008). Research review: The importance of callous-unemotional traits for developmental models of aggressive and antisocial behavior. *Journal of Child Psychology and Psychiatry, 49*(4), 359-375. doi: 10.1111/j.1469-7610.2007.01862.x

Gamez, W., Chmielewski, M., Kotov, R., Ruggero, C., & Watson, D. (2011). Development of a measure of experiential avoidance: The Multidimensional Experiential Avoidance Questionnaire. *Psychological Assessment, 23*(3), 692-713. doi: 10.1037/a0023242

Goldberg, L. R., & Freyd, J. J. (2006). Self-reports of potentially traumatic experiences in an adult community sample: Gender differences and test-retest stabilities of the items in a Brief Betrayal-Trauma Survey. *Journal of Trauma & Dissociation, 7*(3), 39-63. doi: 10.1300/J229v07n03_04

Goldsmith, R. E., Freyd, J., & DePrince, A. P. (2012). Betrayal trauma: Associations with psychological and physical symptoms in young adults. *Journal of Interpersonal Violence, 27*(3), 547-567. doi: 10.1177/0886260511421672

Goodman, K. L., De Los Reyes, A., & Bradshaw, C. P. (2010). Understanding and using informants' reporting discrepancies of youth victimization: A conceptual model and recommendations for research. *Clinical Child and Family Psychology Review, 13*(4), 366-383. doi: 10.1007/s10567-010-0076-x

Guion, K., Mrug, S., & Windle, M. (2009). Predictive value of informant discrepancies in reports of parenting: Relations to early adolescents' adjustment. *Journal of Abnormal Child Psychology, 37*(1), 17-30. doi: 10.1007/s10802-008-9253-5

Hayes, A. F., (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression based approach.* New York, NY: The Guilford Press.

Hayes, S. C., & Strosahl, K. D. (Eds.). (2004). *A practical guide to acceptance and commitment therapy*. Springer. doi: 10.1007/978-0-387-23369-7

Hayes, S. C., Strosahl, K., Wilson, K. G., Bissett, R. T., Pistorello, J., Toarmino, D., ... & McCurry, S. M. (2004). Measuring experiential avoidance: A preliminary test of a working model. *Psychological Record, 54*(4), 553-578.

Hayes, S. C., Wilson, K. G., Gifford, E. V., Follette, V. M., & Strosahl, K. (1996). Experiential avoidance and behavioral disorders: A functional dimensional approach to diagnosis and treatment. *Journal of Consulting and Clinical Psychology, 64*, 1152-1168.

Huizinga, D., Loeber, R., & Thornberry, T. P. (1993). Longitudinal study of delinquency, drug use, sexual activity, and pregnancy among children and youth in three cities. *Public Health Reports, 108*(1), 90.

Ireland, T. O., Smith, C. A., & Thornberry, T. P. (2002). Developmental issues in the impact of child maltreatment on later delinquency and drug use. *Criminology, 40*(2), 359-400. doi: 10.1111/j.1745-9125.2002.tb00960.x

Jaffe, P. G., Wolfe, D. A., & Wilson, S. K. (1990). *Children of battered women*. Newbury Park, CA: Sage Publications, Inc.

Johnson, T. P., Cho, Y. I., Fendrich, M., Graf, I., Kelly-Wilson, L., & Pickup, L. (2004). Treatment need and utilization among youth entering the juvenile corrections system. *Journal of Substance Abuse Treatment, 26*(2), 117-128. doi: 10.1016/S0740-5472(03)00164-8

Kahn, R. E., Frick, P. J., Youngstrom, E. A., Kogos Youngstrom, J., Feeny, N. C., & Findling, R. L. (2013). Distinguishing primary and secondary variants of callous-unemotional traits among adolescents in a clinic-referred sample. *Psychological Assessment*, *25*(3), 966. doi: 10.1037/a0032880

Kaplow, J. B., Dodge, K. A., Amaya-Jackson, L., & Saxe, G. N. (2005). Pathways to PTSD, part II: Sexually abused children. *American Journal of Psychiatry*, *162*(7), 1305-1310. doi: 10.1176/appi.ajp.162.7.1305

Kaplow, J. B., Gipson, P. Y., Horwitz, A. G., Burch, B. N., & King, C. A. (2013). Emotional suppression mediates the relation between adverse life events and adolescent suicide: Implications for prevention. *Prevention Science*, 1-9. doi: 10.1007/s11121-013-0367-9

Kaplow, J. B., & Widom, C. S. (2007). Age of onset of child maltreatment predicts long-term mental health outcomes. *Journal of Abnormal Psychology*, *116*(1), 176. doi: 10.1037/0021-843X.116.1.176

Karpman, B. (1941). On the need of separating psychopathy into two distinct clinical types: The symptomatic and the idiopathic. *Journal of Criminal Psychopathology*, *3*, 112-137.

Kashdan, T. B., Morina, N., & Priebe, S. (2009). Post-traumatic stress disorder, social anxiety disorder, and depression in survivors of the Kosovo War: Experiential avoidance as a contributor to distress and quality of life. *Journal of Anxiety Disorders*, *23*(2), 185-196. doi: 10.1016/j.janxdis.2008.06.006

Keiley, M. K., Howe, T. R., Dodge, K. A., Bates, J. E., & Pettit, G. S. (2001). The timing of child physical maltreatment: A cross-domain growth analysis of impact on adolescent externalizing and internalizing problems. *Development and Psychopathology*, *13*(04), 891-912.

Kelley, L. P., Weathers, F. W., Mason, E. A., & Pruneau, G. M. (2012). Association of life threat and betrayal with posttraumatic stress disorder symptom severity. *Journal of traumatic stress*, *25*(4), 408-415. doi: 10.1002/jts.21727

Kerig, P. K. (in press). Adolescence. In K. Becker-Blease, & P. K. Kerig (Eds.), *Child maltreatment: A developmental psychopathology perspective.* APA Division 56 Trauma Psychology Book Series, Washington, DC: American Psychological Association Press.

Kerig, P. K., & Becker, S. P. (2010). From internalizing to externalizing: Models of the processes linking PTSD to juvenile delinquency. In F. Columbus (Ed.), *Posttaumatic stress disorder (PTSD): Causes, symptoms, and treatment*.

Happauge, NY: Nova Science Publishers.

Kerig, P. K., Bennett, D., Thompson, M., & Becker, S. P. (2012). "Nothing really matters:" Emotional numbing as a link between trauma exposure and callousness among delinquent youth. *Journal of Traumatic Stress, 25*(3), 272-279. doi: 10.1002/jts.21700

Kerig, P. K., Ludlow, A., & Wenar, C. (2012). *Developmental psychopathology: From infancy through adolescence (6th ed.)*. Maidenhead, UK: McGraw-Hill.

Kerig, P. K., Ward, R. M., Vanderzee, K. L., & Arnzen Moeddel, M. (2009). Posttraumatic stress as a mediator of the relationship between trauma and mental health problems among juvenile delinquents. *Journal of Youth and Adolescence, 38*, 1214-1225. doi: 10.1007/s10964-008-9332-5

Kimonis, E. R., Frick, P. J., Munoz, L. C., & Aucoin, K. J. (2009). Callous-unemotional traits and the emotional processing of distress cues in detained boys: Testing the moderating role of aggression, exposure to community violence, and histories of abuse. *Development and Psychopathology, 20*, 569-589. doi: 10.1017/S095457940800028X

Kimonis, E. R., Skeem, J. L., Cauffman, E., & Dmitrieva, J. (2010). Are secondary variants of 'juvenile psychopathy' more reactively violent and less psychosocially mature than primary variants? *Law and Human Behavior, 35*(5), 381-391. doi: 10.1007/s10979-010-9243-3

King, D. W., Leskin, G. A., King, L. A., & Weathers, F. W. (1998). Confirmatory factor analysis of the Clinician-Administered PTSD Scale: Evidence for the dimensionality of posttraumatic stress disorder. *Psychological Assessment, 10*(2), 90-96. doi: 10.1037/1040-3590.10.2.90

King, L. A., & King, D. W. (1994). Latent structure of the Mississsippi Scale for Combat-Related Posttraumatic Stress Disorder: Three studies in reliability and validity. *Journal of Consulting and Clinical Psychology, 56*, 85-90.

Kingston, J., Clarke, S., & Remington, B. (2010). Experiential avoidance and problem behavior: A mediational analysis. *Behavior Modification, 34*(2), 145-163. doi: 10.1177/0145445510362575

Kline, R. B. (2011). *Principles and practice of structural equation modeling*. New York, NY: Guilford Press.

Kobak, R., Cassidy, J., & Zir, Y. (2004). Attachment-related trauma and posttraumatic stress disorder. In W. S. Rholes & J. A. Simpson (Eds.), *Adult attachment: Theory, research, and clinical implications* (pp. 388-407). New York, NY:

Guilford Press.

Krischer, M. K., & Sevecke, K. (2008). Early traumatization and psychopathy in female and male juvenile offenders. *International Journal of Law and Psychiatry, 31,* 253-262. doi: 10.1016/j.ijlp.2008.04.008

Kruh, I. P., Frick, P. J., & Clements, C. B. (2005). Historical and personality correlates to the violence patterns of juveniles tried as adults. *Criminal Justice and Behavior, 32*(1), 69-96. doi: 10.1177/0093854804270629

Lansford, J. E., Miller-Johnson, S., Berlin, L. J., Dodge, K. A., Bates, J. E., & Pettit, G. S. (2007). Early physical abuse and later violent delinquency: A prospective longitudinal study. *Child Maltreatment, 12,* 233-245. doi: 10.1177/1077559507301841

Lewis, T., Kotch, J., Thompson, R., Litrownik, A. J., English, D. J., Proctor, L. J., ... & Dubowitz, H. (2010). Witnessed violence and youth behavior problems: A multi-informant study. *American Journal of Orthopsychiatry, 80*(4), 443-450. doi: 10.1111/j.1939-0025.2010.01047.x

Lindblom, K. M., & Gray, M. J. (2010). Relationship closeness and trauma narrative detail: A critical analysis of betrayal trauma theory. *Applied Cognitive Psychology, 24,* 1-19. doi: 10.1002/acp.1547

Litz, B. T. (1992). Emotional numbing in combat-related posttraumatic stress disorder: A critical review and reformulation. *Clinical Psychology Review, 12,* 417-432.

Litz, B. T., Schlenger, W. E., Weathers, F. W., Caddell, J. M., Fairbank, J. A., & LaVange, L. M. (1997). Predictors of emotional numbing in posttraumatic stress disorder. *Journal of Traumatic Stress, 10,* 607-618. doi: 10.1002/jts.2490100407

Main, M., & Weston, D. (1982). Avoidance of the attachment figure in infancy: Descriptions and Interpretations. In C. M. Parkes & J. Stevenson-Hinde (Eds.), *The place of attachment in human behavior*. New York, NY: Basic Books.

Martin, C. G., Cromer, L. D., DePrince, A. P., & Freyd, J. (2011). The role of cumulative trauma, betrayal, and appraisals in understanding trauma symtomatology. *Psychological Trauma: Theory, Research, Practice, and Policy, 5*(2), 110-118. doi: 10.1037/a0025686

Marx, B. P., & Sloan, D. M. (2005). Peritraumatic dissociation and experiential avoidance as predictors of posttraumatic stress symptomatology. *Behaviour Research and Therapy, 43*(5), 569-583. doi: 10.1016/j.brat.2004.04.004

McNally, R. J. (2007). Betrayal trauma theory: A critical appraisal. *Memory, 15*(3), 280-294. doi: 10.1080/09658210701256506

McNally, R. J., Ristuccia, C. S., & Perlman, C. A. (2005). Forgetting of trauma cues in adults reporting continuous or recovered memories of childhood sexual abuse. *Psychological Science, 16*(4), 336-340. doi: 10.1111/j.0956-7976.2005.01536.x

Meiser-Stedman, R., Smith, P., Glucksman, E., Yule, W., & Dalgleish, T. (2007). Parent and child agreement for acute stress disorder, post-traumatic stress disorder and other psychopathology in a prospective study of children and adolescents exposed to single-event trauma. *Journal of Abnormal Child Psychology, 35*(2), 191-201. doi: 10.1007/s10802-006-9068-1

Meiser-Stedman, R., Smith, P., Glucksman, E., Yule, W., & Dalgleish, T. (2008). The posttraumatic stress disorder diagnosis in preschool-and elementary school-age children exposed to motor vehicle accidents. *American Journal of Psychiatry, 165*(10), 1326-1337. doi: 10.1176/appi.ajp.2008.07081282

Miller, M. W., Wolf, E. J., Kilpatrick, D., Resnick, H., Marx, B. P., Holowka, D. W., ... & Friedman, M. J. (2013). The prevalence and latent structure of proposed DSM-5 posttraumatic stress disorder symptoms in US national and veteran samples. *Psychological Trauma: Theory, Research, Practice, and Policy, 5*(6), 501. doi: 10.1037/a0029730

Moretti, M. M., & Odgers, C. (2006). Preface: Sex differences in the functions and precursors of adolescent aggression. *Aggressive Behavior, 32*(4), 373-375. doi: 10.1002/ab.20135

Moretti, M. M., Obsuth, I., Odgers, C. L., & Reebye, P. (2006). Exposure to maternal vs. paternal partner violence, PTSD, and aggression in adolescent girls and boys. *Aggressive Behavior, 32*(4), 385-395. doi: 10.1002/ab.20137

Morina, N., Stangier, U., & Risch, A. K. (2008). Experiential avoidance in civilian war survivors with current versus recovered posttraumatic stress disorder: A pilot study. *Behaviour Change, 25*(01), 15-22. doi: 10.1375/bech.25.1.15

Nugent, N. R., Christopher, N. C., & Delahanty, D. L. (2006). Initial physiological responses and perceived hyperarousal predict subsequent emotional numbing in pediatric patients. *Journal of Traumatic Stress, 19*(3), 349-359. doi: 10.1002/jts.20130

Orcutt, H. K., Pickett, S. M., & Pope, E. B. (2005). Experiential avoidance and forgiveness as mediators in the relation between traumatic interpersonal events and posttraumatic stress disorder symptoms. *Journal of Social and Clinical*

Psychology, *24*(7), 1003-1029. doi: 10.1521/jscp.2005.24.7.1003

Orsillo, S. M., Theodore-Oklata, C., Luterek, J. A., & Plumb, J. (2007). The development and psychometric evaluation of the Emotional Reactivity and Numbing Scale. *Journal of Nervous and Mental Disease, 195*, 830-836. doi: 10.1097/NMD.0b013e318156816f

Plumb, J. C., Orsillo, S. M., & Luterek, J. A. (2004). A preliminary test of the role of experiential avoidance in post-event functioning. *Journal of Behavior Therapy and Experimental Psychiatry*, *35*(3), 245-257. doi: 10.1016/j.jbtep.2004.04.011

Polusny, M. A., Rosenthal, M. Z., Aban, I., & Follette, V. M. (2004). Experiential avoidance as a mediator of the effects of adolescent sexual victimization on negative adult outcomes. *Violence and Victims*, *19*(1), 109-120. doi: 10.1891/vivi.19.1.109.33238

Pynoos, R. S., Steinberg, A. M., Layne, C. M., Briggs, E. C., Ostrowski, S. A., & Fairbank, J. A. (2009). DSM-V PTSD diagnostic criteria for children and adolescents: A developmental perspective and recommendations. *Journal of Traumatic Stress*, *22*(5), 391-398. doi: 10.1002/jts.20450

Pynoos, R. S., Steinberg, A. M., & Piacentini, J. C. (1999). A developmental psychopathology model of childhood traumatic stress and intersection with anxiety disorders. *Biological Psychiatry*, *46*(11), 1542-1554. doi: 10.1016/S0006-3223(99)00262-0

Raftery, A. E. (1995). Bayesian model selection in social research. *Sociological Methodology, 25*, 111-163. doi: 10.2307/271063

Reddy, M. K., Pickett, S. M., & Orcutt, H. K. (2006). Experiential avoidance as a mediator in the relationship between childhood psychological abuse and current mental health symptoms in college students. *Journal of Emotional Abuse*, *6*(1), 67-85. doi: 10.1300/J135v06n01_04

Ruchkin, V., Henrich, C. C., Jones, S. M., Vermeiren, R., & Schwab-Stone, M. (2007). Violence exposure and psychopathology in urban youth: The mediating role of posttraumatic stress. *Journal of Abnormal Child Psychology*, *35*(4), 578-593. doi: 10.1007/s10802-007-9114-7

Ryan, J. P., Williams, A. B., & Courtney, M. E. (2013). Adolescent neglect, juvenile delinquency and the risk of recidivism. *Journal of Youth and Adolescence, 42*(3), 454-465. doi: 10.1007/s10964-013-9906-8

Selner-O'Hagan, M. B., Kindlon, D. J., Buka, S. L., Raudenbush, S. W., & Earls, F. J. (1998). Assessing exposure to violence in urban youth. *Journal of Child*

Psychology and Psychiatry, *39*(2), 215-224. doi: 10.1111/1469-7610.00315

Shenk, C. E., Putnam, F. W., Rausch, J. R., Peugh, J. L., & Noll, J. G. (2014). A longitudinal study of several potential mediators of the relationship between child maltreatment and posttraumatic stress disorder symptoms. *Development and Psychopathology, 26,* 81-91. doi: 10.1017/S0954579413000916

Smith, C. A., Thornberry, T. P., & Ireland, T. O. (2004). Adolescent maltreatment and its impact: Timing matters. *Prevention Researcher*, *11*(1), 7-11.

Stewart, A., Livingston, M., & Dennison, S. (2008). Transitions and turning points: Examining the links between child maltreatment and juvenile offending. *Child abuse and neglect, 32*, 51-66. 10.1016/j.chiabu.2007.04.011

Tatar, J., Cauffman, E., Kimonis, E. R., & Skeem, J. L. (2012). Victimization history and post-traumatic stress: An analyses of psychopathy variants in male juvenile offenders. *Journal of Child and Adolescent Trauma, 5*(2), 102-113. doi: 10.1080/19361521.2012.671794

Taylor, L. K., & Weems, C. F. (2009). What do youth report as a traumatic event? Toward a developmentally informed classification of traumatic stressors. *Psychological Trauma: Theory, Research, Practice, and Policy*, *1*(2), 91. doi: 10.1037/a0016012

Teplin, L. A., Abram, K. M., McClelland, G. M., Dulcan, M. K., & Mericle, A. A. (2002). Psychiatric disorders in youth in juvenile detention. *Archives of General Psychiatry*, *59*(12), 1133-1143. doi: 10.1001/archpsyc.59.12.1133

Thornberry, T. P., Huizinga, D., & Loeber, R. (2004). The causes and correlates studies: Findings and policy implications. *Juvenile Justice*, *9*(1), 3-19.

Thornberry, T. P., Ireland, T. O., & Smith, C. A. (2001). The importance of timing: The varying impact of childhood and adolescent maltreatment on multiple problem outcomes. *Development and Psychopathology*, *13*(4), 957-979.

Tull, M. T., & Roemer, L. (2003). Alternative explanations of emotional numbing of posttraumatic stress disorder: An examination of hyperarousal and experiential avoidance. *Journal of Psychopathology and Behavioral Assessment, 25,* 147-154.

Viding, M. G., Blair, R. J. R., Moffitt, T. E., & Plomin, R. (2005). Evidence for substantial genetic risk for psychopathy in 7-year-olds. *Journal of Child Psychology and Psychiatry*, *46*, 592-597. doi: 10.1111/j.1469-7610.2004.00393.x

Weiler, B. L., & Widom, C. S. (1996). Psychopathy and violent behaviour in abused and neglected young adults. *Criminal Behavior and Mental Health, 6,* 253-271. doi:

10.1002/cbm.99

White, S. F., Cruise, K. R., & Frick, P. J. (2009). Differential correlates to self-report and parent-report of callous–unemotional traits in a sample of juvenile sexual offenders. *Behavioral Sciences & The Law*, *27*(6), 910-928.